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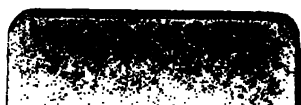
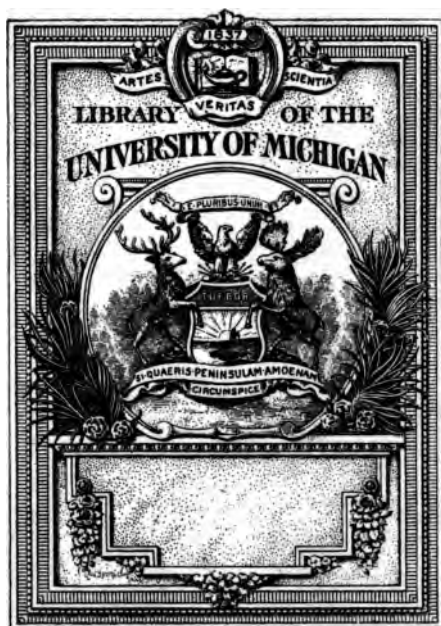
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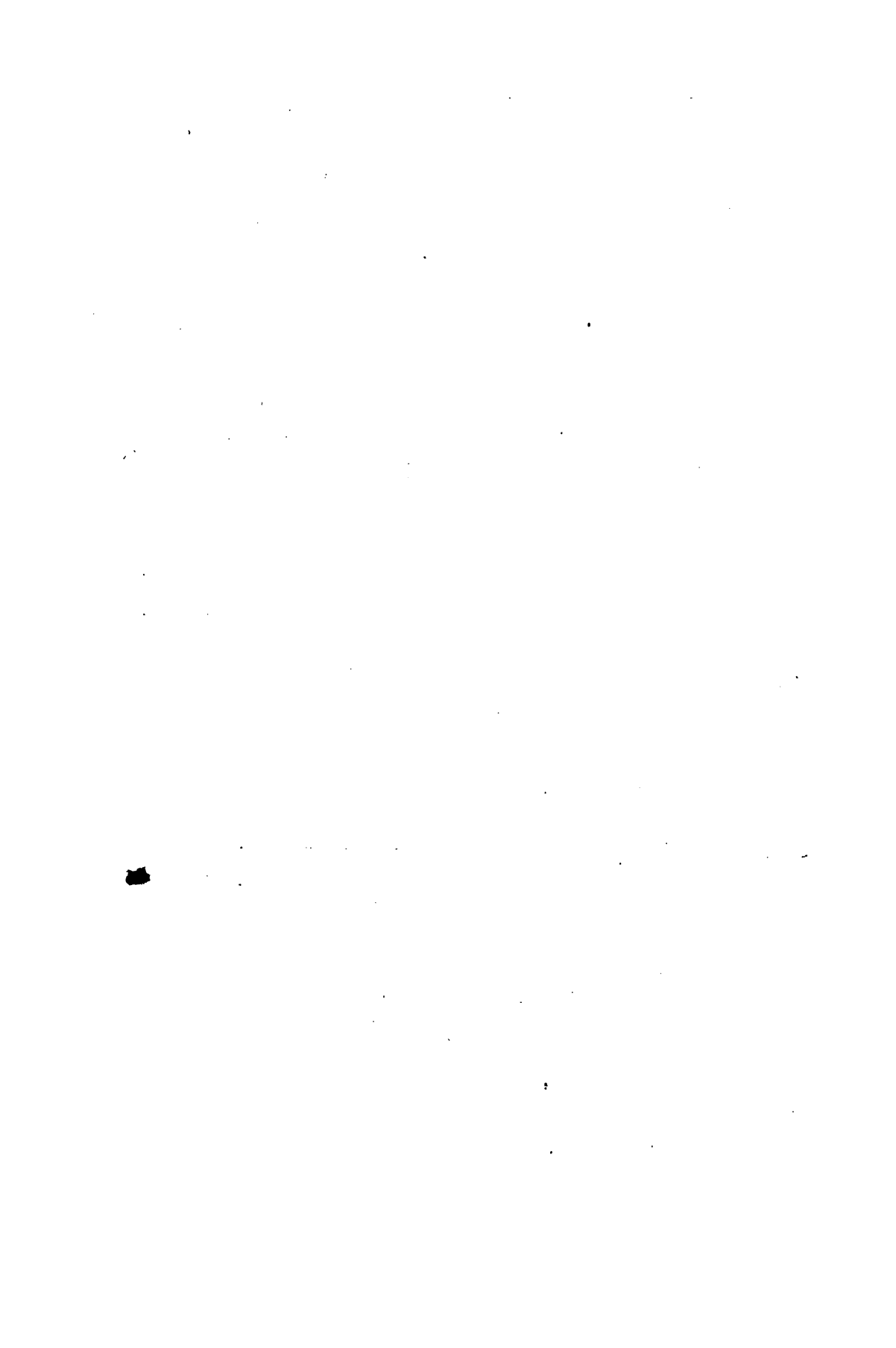
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[No. 7.]

ANNUAL REPORT
OF THE
STATE SUPERINTENDENT
OF THE
STATE OF WISCONSIN,
FOR THE
SCHOOL YEAR ENDING AUGUST 31, 1881.



WILLIAM C. WHITFORD,
State Superintendent.

MADISON, WIS.:
DAVID ATWOOD, STATE PRINTER.
1882.

OFFICE OF THE STATE SUPERINTENDENT,
MADISON, WIS., December 10, 1881.

To His Excellency, WILLIAM E. SMITH,
Governor of Wisconsin:

Sir — I have the honor of submitting, through you, to the Legislature, the thirty-third Annual Report of the Department of Public Instruction, which embraces the school year ending August 31, 1881.

I am, sir, very respectfully,

Your obedient servant,

WILLIAM C. WHITFORD,
State Superintendent.

CONTENTS.

	<i>Page.</i>
REPORT OF STATE SUPERINTENDENT.....	v-lili
Introductory Statement.....	v
1. STATISTICAL SUMMARIES—	
Subdivisions I-LI	vii-xxxi
2. OFFICIAL LABORS—	
I. Map of Wisconsin.....	xxxii
II. Webster's Unabridged Dictionary	xxxii
III. Collecting Statistics for the Census Office.....	xxxliii
IV. Examination for Teachers' State Certificates.....	xxxliv
V. A Decision in an Appeal Case Sustained by the Supreme Court	xxxv
VI. Office Work.....	xxxvi
VII. Travel and Lectures	xxxviii
VIII. Circular on School-houses.....	xxxix
3. OBSERVATIONS ON THE PRESENT CONDITION OF THE PUBLIC SCHOOL SYSTEM—	
I. Additions to the School Lands.....	xxxix
II. Fines Collected for Breach of Penal Laws.....	xli
III. Annual Meeting of School-districts	xlii
IV. Former Recommendations of Improvements	xliii
V. Township System of School Government.....	xliv
VI. Kindergarten Instruction.....	xlv
VII. Duties of County and City Superintendents in Respect to School-houses and School Grounds.....	xlvi
VIII. The Grading System for the Country Schools.....	1
4. DOCUMENTS ACCOMPANYING THE REPORT—	
CIRCULAR ON PLANS AND SPECIFICATIONS OF SCHOOL-HOUSES ..	2-200
EXTRACTS FROM THE REPORTS OF COUNTY SUPERINTENDENTS..	200-233
EXTRACTS FROM THE REPORTS OF CITY SUPERINTENDENTS.....	234-238
EXTRACTS FROM THE ANNUAL REPORTS OF STATE EDUCATIONAL INSTITUTIONS—	
President of the Board of Regents of State University.....	239
President of the Faculty of State University	240
President of the Board of Regents of State Normal Schools..	242
President of the Platteville Normal School.....	243
President of the Whitewater Normal School.....	245
President of the Oshkosh Normal School.....	246
President of the River Falls Normal School	247
Principal of the Industrial School for Boys.....	249
Superintendent of the Industrial School for Girls.....	250
Superintendent of the Institution for the Blind.....	251
Superintendent of the Institution for the Deaf and Dumb.....	253
Secretary of the Trustees of the Soldiers' Orphans' Home...	255

Contents.

4. DOCUMENTS ACCOMPANYING THE REPORT — Con.	<i>Page.</i>
REPORTS OF VISITING COMMITTEES—	
To the Platteville Normal School.....	257
To the Whitewater Normal School	261
To the Oshkosh Normal School.....	268
To the River Falls Normal School.....	271
EXAMINATION OF TEACHERS FOR STATE CERTIFICATES	277-290
5. STATISTICAL TABLES —	
I. Apportionment of School Fund Income.....	291
STATISTICS OF COUNTIES.	
II. Districts, Children, and School Attendance	293
III. Graded Schools, Teachers, Wages, Number of Schools, etc	296
IV. School-houses and School Appliances.....	299
V. Valuation of School-houses, Their Sites, Enrollment, etc	302
VI. Libraries, Town Schools, State Tax, and High Schools	305
VII. Private School not Incorporated.....	308
VIII. Financial Statistics — Receipts.....	311
IX. Financial Statistics — Expenditures	314
X. Teachers' Certificates and Normal School Teachers ..	317
XI. Text-books	320
XII. Teachers' Institutes — Names of Conductors, etc.	329
XIII. Teachers' Institutes — Special Reports.....	331
STATISTICS OF CITIES.	
XIV. School Children in Attendance.....	334
XV. Teachers, Salaries, Graded and High Schools.....	336
XVI. School-houses, Sites, and Valuation	338
XVII. School Rooms, Apparatus, Libraries, Kindergartens..	340
XVIII. Text-books, Course of Study, Teachers' Reports, etc..	342
XIX. Private Schools not Incorporated.....	344
XX. Financial Statistics — Receipts	346
XXI. Financial Statistics — Expenditures.....	348
XXII. Teachers' Certificates, Normal School Teachers, etc..	350
XXIII. Text-books — List.....	352
MISCELLANEOUS STATISTICS.	
XXIV. High Schools Aided by the State.....	354
XXV. High Schools not Aided by the State.....	362
XXVI. Colleges and Universities.....	366
XXVII. Theological Seminaries.....	370
XXVIII. Academies	372
XXIX. Business Colleges.....	376
XXX. Distribution of Dictionaries.....	378
XXXI. Dictionaries Sold	381
XXXII. Teachers' State Certificates in Force	385
XXXIII. City Superintendents — List	398
XXXIV. County Superintendents — List.....	399

ANNUAL REPORT

OF THE

STATE SUPERINTENDENT OF WISCONSIN.

OFFICE OF STATE SUPERINTENDENT,
MADISON, December 10, 1881.

To the Legislature of Wisconsin:

GENTLEMEN — In compliance with law, I have the honor of submitting to you and to the people of the State through you, my fourth Annual Report, which covers the school year ending August 31, 1881. It is also the thirty-third issued by this Department, and possesses the special interest of exhibiting fully the educational condition of the State at the close of a third of a century under the operations of the present free school system.

During the twelve years in which Wisconsin was a Territory previous to 1848, no State institutions of learning were organized, several private or denominational academies and colleges were incorporated, and less than 2,000 public schools were established. These last named were maintained by lease of the sixteenth section in each township, by local taxation of property, and by rate bills; and were managed solely under the supervision of district and town officers. Since that time, the wise provisions of the State Constitution, which relate to popular education, have directed our citizens in securing a marvelous growth in all grades of schools. The large funds for the support of the public schools, the State University, and the Normal Schools, have been created; these State Institutions, together with the State Reformatory and Charitable Schools, have performed most vigorous work and assumed a permanent position; all the private colleges have attained

Introductory Statement.

a high rank and exerted a most beneficent influence; the public schools have been placed under the control of State and county officers; the valuation of school-houses alone has increased from about \$150,000 to over \$4,500,000; several hundred graded and high schools have been added to the nearly 5,500 elementary ones, in all of which instruction is required to be given "free and without charge for tuition;" the attendance of children upon these has augmented at least six-fold; and better methods of school organization and teaching have everywhere been adopted. No other single branch of business in charge of the State has arrived at that stage where it is attended yearly with so great expenditures of money, guides the labors of so many persons, embraces such valuable and far-reaching results, and makes such rapid progress under the reforming and invigorating spirit and thought of this generation.

A survey of the educational movements of the State for the past year, shows that prominent improvements have been secured in the following points:

1. A steady and healthful advancement in all grades of schools and methods of school work. This fact is exhibited, in part, under the complete summaries of the statistics which are herewith given.
2. A more manifest expression of the spirit of harmony and earnest zeal in the management and teaching of the schools.
3. A more general and decided recognition of the prominent defects in our public school system, and a more apparent willingness to remedy these defects.
4. A slight growth of sentiment in some sections, favorable to employing teachers of better qualifications in the public schools, and to retaining them longer in their positions.
5. In spite of the serious hinderances of the past year, an increase in the enrollment of pupils in all the schools, including the higher institutions of learning. There is a steady growth in the interest of the people in securing a larger and more uniform attendance upon the schools.

Statistical Summaries.

6. A wider dissemination of the most reliable information in respect to hygienic laws as applied to the construction of school-houses, the oversight of school grounds, and the care of children while in school.

7. A marked progress in the methods of classifying and instructing the pupils in the ungraded country schools, as reached by the introduction of the graded system for these schools, and by the use of other instrumentalities employed in connection with it.

STATISTICAL SUMMARIES.

The returns are here usually arranged, as in the tables at the close of this Annual Report, so as to show the condition of the public and private schools in both the sixty-three counties and the twenty-eight independent cities. It will be observed that one has been added, the past year, to each of these lists of the counties and cities.

I. NUMBER OF SCHOOL-DISTRICTS.

	1880.	1881.	Increase.
In the counties.....	5,573	5,613	40
In the cities.....	31	32	1
Totals.....	5,604	5,645	41

II. NUMBER OF SCHOOL-DISTRICTS REPORTING.

	1880.	1881.	Increase.
In the counties.....	5,530	5,556	26
In the cities.....	31	32	1
Totals.....	5,561	5,588	27

Statistical Summaries.

 III. NUMBER OF PUBLIC SCHOOLS.

	1880.	1881.	Decrease.
In the counties	5,797	5,651	146
In the cities.....	187	193	inc. 5
Totals.....	5,984	5,843	141

There has been an actual increase in the number of the schools in the counties. The decrease shown arises from the different methods of reporting. Last year each department in the schools of some counties was returned as a school; this year all the departments of a school in a single building are regarded as constituting a single school.

IV. NUMBER OF UNGRADED SCHOOLS.

	1880.	1881.	Decrease.
In the counties	5,507	5,332	175
In the cities.....	26	37	inc. 11
Totals.....	5,533	5,369	164

The decrease in the counties is not real, and is occasioned by the same cause mentioned in the foregoing subdivision.

V. NUMBER OF GRADED SCHOOLS.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, with two departments.....	165	184	19
In the cities, with two departments.....	36	35	dec. 1
In the counties, with three departments.....	54	50	dec. 4
In the cities, with three departments.....	33	29	dec. 4
In the counties, with four or more departments.....	75	85	10
In the cities, with four or more departments.....	88	91	3
Totals.....	451	474	23

Statistical Summaries.

VI. NUMBER OF HIGH SCHOOLS.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, aided by the State.....	70	61	dec. 9
In the cities, aided by the State.....	21	17	dec. 4
In the counties, not aided by the State.....	14	28	14
In the cities, not aided by the State.....	5	11	6
Totals.....	110	117	7

Among the thirteen High Schools, organized this year under the Free High School law, and therefore entitled to aid from the State, are five which do not appear in the returns as thus aided, viz.: Dodgeville, Elroy, Merrill, Walworth, and Westfield. These have been established since August 31st last.

VII. NUMBER OF PRIVATE SCHOOLS.

	1880.	1881.	Decrease.
In the counties	351	325	26
In the cities.....	188	140	inc. 2
Totals.....	489	465	24

VIII. NUMBER OF TEACHERS REQUIRED FOR THE PUBLIC SCHOOLS.

	1880.	1881.	Increase.
In the counties	6,133	6,253	120
In the cities.....	828	812	dec. 16
Totals.....	6,961	7,065	104

Statistical Summaries.

IX. NUMBER OF TEACHERS EMPLOYED IN THE PUBLIC SCHOOLS.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, males.....	2,781	2,583	198
In the cities, males.....	137	138	inc. 1
In the counties, females.....	6,525	6,504	21
In the cities, females.....	672	694	inc. 22
Totals.....	10,115	9,919	196

X. NUMBER OF TEACHERS EMPLOYED IN THE PRIVATE SCHOOLS.

	1880.	1881.	Decrease.
In the counties.....	411	404	7
In the cities.....	393	350	43
Totals.....	804	754	50

XI. NUMBER OF PUBLIC SCHOOL HOUSES.

	1880.	1881.	Increase.
In the counties.....	5,497	5,577	80
In the cities.....	170	177	7
Totals.....	5,667	5,754	87

XII. NUMBER OF PUPILS SCHOOL-HOUSES WILL ACCOMMODATE.

	1880.	1881.	Increase.
In the counties.....	315,728	313,199	dec. 2,529
In the cities.....	45,405	50,133	4,728
Totals.....	361,133	363,332	2,199

Statistical Summaries.

XIII. NUMBER OF CHILDREN OF SCHOOL AGE.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, males	198,734	197,304	dec. 1,430
In the cities, males	47,349	50,366	3,017
In the counties, females	187,554	191,145	3,591
In the cities, females	49,592	52,543	2,951
Totals	483,229	491,358	8,129

XIV. NUMBER OF CHILDREN OF SCHOOL AGE IN DISTRICTS
MAINTAINING LEGAL SCHOOL.

	1880.	1881.	Increase.
In the counties	383,283	386,624	3,341
In the cities	96,941	102,909	5,968
Totals	480,224	489,533	9,309

XV. NUMBER OF CHILDREN ATTENDING PUBLIC SCHOOLS.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, under 4 years of age	482	281	dec. 201
In the cities, under 4 years of age	1	10	9
In the counties, over 20 years of age	1,285	958	dec. 327
In the cities, over 20 years of age	65	60	dec. 5
In the counties, between 4 and 20 years of age	251,224	248,467	dec. 2,757
In the cities, between 4 and 20 years of age	46,40	50,346	3,946
Totals	299,457	300,122	665

The unusually stormy weather and deep snows of last winter and the contagious diseases which have prevailed, portions of the year, in many localities of the State, have reduced somewhat the attendance in the counties. These hinderances have not been as severely felt in the cities, where the attendance upon the regular schools has increased nearly 2,000. That upon the night schools of three cities has also increased fully this number, making the gain in all the cities nearly 4,000.

Statistical Summaries.

If the compulsory education law had not been in force, the decrease in the number enrolled in the schools of the counties would have been greater. Hundreds of statements from district officers passed through my hands this last fall, showing that this measure is exercising its designed influence upon parents and school boards in many places, in enlarging the attendance of children, between seven and fifteen years of age, upon the schools. It will be remembered that the enrollment of children in the school census last year in the public schools alone, was augmented over 8,000 chiefly through the effects of this law.

XVI. NUMBER OF CHILDREN ATTENDING PRIVATE SCHOOLS ONLY.

	1880.	1881.	Decrease.
In the counties	9,659	9,860	inc. 201
In the cities	16,279	14,764	1,515
Totals	25,938	24,624	1,314

It is evident that the decrease in the private schools of the cities has been caused by children being taken from them and then sent to the public schools.

XVII. TOTAL NUMBER OF PUPILS ATTENDING SCHOOLS OF ALL GRADES.

DESCRIPTION.	1880.	1881.	Increase.
Public Schools.....	299,457	300,122	665
Private Schools.....	25,938	24,624	dec. 1,314
State Normal Schools.....	1,880	1,898	18
State University.....	481	442	dec. 39
State Charitable and Reformatory Schools.....	948	966	18
Other Benevolent Institutions.....	700	972	272
Academies.....	1,303	1,628	325
Denominational Colleges.....	1,775	2,245	470
Theological Seminaries.....	331	284	dec. 47
Business Colleges.....	955	1,198	243
Totals.....	333,768	334,379	611

Statistical Summaries.

XVIII. PERCENTAGE OF ATTENDANCE OF CHILDREN.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, at public schools.....	65.0	64.26	.74
In the cities, at public schools.....	47.17	49.02	inc. 1.85
In both the counties and cities, at public schools...	61.8	61.04	.76
In the counties, at private schools.....	2.5	2.55	inc. .05
In the cities, at private schools.....	16.6	14.34	2.26
In both the counties and cities, at private schools...	5.38	5.03	.35
At other schools of all grades.....	1.72	1.92	inc. .20
At all the schools of the State.....	69.04	68.26	.78

The slight decrease in percentage is due to the causes already mentioned, viz., the inclement weather of last winter and the contagious diseases.

XIX. PERCENTAGE OF ATTENDANCE ON NUMBER OF CHILDREN ENROLLED.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, at public schools.....	63.5	59.9	3.6
In the cities, at public schools.....	79.8	71.6	8.2
In both the counties and cities, at public schools...	66.0	63.6	2.4
In the counties, at private schools.....	26.1	17.4	8.7
In the cities, at private schools.....	62.7	73.5	inc. 10.8
In both the counties and cities, at private schools ..	49.1	58.8	inc. 9.7
At both public and private schools in the State.....	64.6	57.4	7.2

The percentage in the cities has decreased mainly from the fact that last year some of them reported that on membership, instead on enrollment. The former must be necessarily higher. This year the distinction has been made between the two bases; and nearly all the cities returning the percentage on membership, give it on the average as 89.1.

An attempt was made this year to obtain statistics from the counties upon both these items, but the reports received from this source were so unsatisfactory that they have not been used. It seemed difficult for the district clerks to prepare their returns

Statistical Summaries.

upon these two questions:—(1) What is the percentage of attendance upon the public schools of the whole number of pupils enrolled? (2) What is the percentage of attendance upon the public school of the pupils while members of the school? The first question should be answered by dividing the whole number of days' actual attendance of the pupils enrolled by the whole number of days' attendance it was possible for them to receive while the school was in session; and the second question should be answered by dividing the whole number of days' actual attendance of the pupils enrolled by the whole number of days in which they were members of the school. The object in view was to ascertain the regularity of the attendance of those enrolled, as well as the amount of it, in both the counties and cities.

XX. AGGREGATE NUMBER OF DAYS PUBLIC SCHOOLS HAVE
BEEN TAUGHT BY QUALIFIED TEACHERS.

	1880.	1881.	Decrease.
In the counties.....	899,154	896,613	2,541
In the cities	5,181	5,391	inc. 210
Totals.....	904,335	902,004	2,331

XXI. AGGREGATE NUMBER OF DAYS PRIVATE SCHOOLS HAVE
BEEN TAUGHT.

	1880.	1881.	Increase.
In the counties.....	47,876	49,994	2,118
In the cities.....	24,978	30,149	5,171
Totals.....	72,854	80,143	7,289

Statistical Summaries.

XXII. AVERAGE NUMBER OF MONTHS BOTH PUBLIC AND PRIVATE SCHOOLS HAVE BEEN TAUGHT.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, the public schools.....	8.14	7.94	dec. .20
In the cities, the public schools.....	9.59	9.62	.03
In the counties, the private schools.....	6.82	6.89	.07
In the cities, the private schools.....	9.05	10.06	1.01

XXIII. SCHOOL ROOMS AND SCHOOL APPLIANCES.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, number of school-rooms occupied for study or recitation.....		6,132	.....
In the cities, number of school rooms occupied for study or recitation.....	725	736	11
In the counties, number of school-houses with black-boards.....	5,161	5,296	135
In the cities, number of school rooms with black-boards.....	715	718	3
In the counties, number of public schools with maps of Wisconsin.....	2,116	2,478	362
In the cities, number of school rooms with maps of Wisconsin.....		233	.....
In the counties, number of public schools with maps of United States.....	2,541	2,706	165
In the cities, number of school rooms with maps of United States.....		251	.....
In the counties, number of public schools with Webster's Unabridged Dictionary.....	4,631	4,858	227
In the cities, number of school rooms with Webster's Unabridged Dictionary.....		523	.....
In the counties, number of public schools with reading charts.....		1,129	.....
In the cities, number of school rooms with reading charts.....		278	.....
In the counties, number of public schools with globes.....		1,531	.....
In the cities, number of school rooms with globes....	228	234	6
In the counties, number of school rooms with charts in Natural Sciences.....		39	.....
In the cities, number of school rooms with other apparatus.....	187	229	42
In the cities, number of school rooms adequately supplied with apparatus.....	204	128	dec. 76

*Statistical Summaries.*XXIV. KINDS, CONDITIONS, AND VALUATION OF PUBLIC
SCHOOL-HOUSES.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, number built the past year.....	191	239	48
In the cities, number built the past year.....	6	6	.....
In the counties, number built of stone or brick.....	745	756	11
In the cities, number built of stone or brick.....	107	112	5
In the counties, number in good condition.....	4,295	4,400	105
In the cities, number in good condition.....	165	157	dec. 8
In the counties, number properly ventilated.....	3,561	3,602	41
In the cities, number properly ventilated.....	85	94	9
In the counties, number yet required.....	.....	243	.....
In the cities, number yet required..	18	18	.....
In the counties, number with separate outhouses for the sexes.....	.....	3,655	.....
In the cities, number with separate outhouses for the sexes.....	154	170	16
In the counties, number with outhouses in good condition....	.....	4,026	.....
In the cities, number with outhouses in good condition.....	153	168	15
In the counties, number with sites containing less than one acre.....	3,782	3,733	dec. 49
In the cities, number with sites containing more than one lot....	145	149	4
In the counties, number with sites well enclosed.....	1,894	1,981	87
In the cities, number with sites well enclosed.....	133	147	14
In the counties, cost of school-houses built this year.....	.....	\$153,985 46	.....
In the cities, cost of school-houses built this year.....	\$33,805 63	41,672 52	\$7,866 89
In the counties, highest valuation of school-house and site.....	40,000 00	40,610 00	610 00
In the cities, highest valuation of school-house and site.....	52,000 00	52,000 00	.....
In the counties, cash valuation of school-houses.....	2,992,134 62	3,085,887 95	93,753 33
In the cities, cash valuation of school-houses.....	1,441,600 00	1,494,300 00	52,700 00
In both the counties and cities, cash valuation of school-houses.....	4,433,734 62	4,580,187 95	146,453 33
In the counties, cash valuation of sites.....	298,795 04	309,360 80	10,565 76

Statistical Summaries.

XXIV. KINDS, CONDITIONS, AND VALUATION OF PUBLIC SCHOOL-HOUSES — Continued.

DESCRIPTION.	1880.	1881.	Increase.
In the cities, cash valuation of sites.	\$403,625 00	\$474,975 00	\$71,350 00
In both the counties and cities, cash valuation of sites.....	702,420 04	784,335 80	81,915 76
In the counties, cash valuation of apparatus, etc.....	141,348 58	140,583 86	dec. 759 72
In the cities, cash valuation of apparatus, etc.....	20,175 00	17,545 00	d. 2,630 00
In both the counties and cities, cash valuation of apparatus, etc.....	161,523 58	158,133 86	d. 3,389 72
In the counties, cash valuation of public school property.....	3,432,278 24	3,535,837 61	103,559 37
In the cities, cash valuation of public school property.....	1,871,020 00	1,986,820 00	115,800 00
In both the counties and cities, cash valuation of public school property	5,303,298 24	5,522,657 61	219,359 37

XXV. TEXT-BOOKS IN SCHOOL-DISTRICTS.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, number having adopted text-books..	3,234	3,292	inc. 58
In the cities, number having adopted text-books.....	31	32	inc. 1
In the counties, number using only text-books adopted	2,470	2,467	3
In the cities, number using only text-books adopted..	23	20	3
In the counties, number purchasing text-books.....	1,851	1,753	98
In the cities, number purchasing text-books.....	6	6	.....
In the counties, number loaning text-books to pupils	619	574	45
In the cities, number loaning text-books to pupils...	3	5	inc. 2
In the counties, number selling text-books to pupils..	1,253	1,175	78
In the cities, number selling text-books to pupils...	4	3	1

The foregoing statistics indicate that the provisions for the adoption and supply of text-books in the country districts and in the cities, are by no means satisfactory. In the counties, nearly two-thirds of the districts,—2,321 in all, return no adoptions; and over one-half of them,—3,146 in all, are using text-books which have not been adopted. Strenuous efforts have been made, in the past four years at least, to induce district

Statistical Summaries.

boards to comply with the terms of the law on this subject; but the results are far from being encouraging. The system of district purchase of books and then loaning or selling them to pupils, has lost ground the past year, particularly in the rural districts. Other means will have to be instituted, by the action of the Legislature and through the exertions of the State Department of Instruction, to secure a general legal adoption of text-books in the school-districts, and even a uniform series of these books at least in each school throughout the State.

XXVI. NUMBER OF SCHOOLS HAVING ADOPTED COURSES OF STUDY.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, number of graded schools.....		165	.....
In the cities, number of graded schools.....	157	155	dec. 2
In the counties, number of ungraded schools.....		651	.....
In the cities, number of ungraded schools.....	26	37	11

The number, 651, of ungraded schools in the counties which are returned as having adopted courses of study, consists of those which had adopted, previously to the close of the past school year, the grading system for the country schools, explained and recommended in a circular issued by myself late in the fall of 1880. I have learned from the county superintendents that at least 400 other ungraded schools in different counties have this adopted system since the 31st of August last.

XXVII. TEACHERS' WAGES.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, average per month, to males...	\$37 14	\$35 39	dec. \$1 75
In the counties, average per month, to females..	24 91	25 21	30
In the cities, average per year, to males.....	829 32	902 82	73 50
In the cities, average per year to females.....	336 35	348 72	12 37
In the cities, average per month, to males.....	85 74	93 85	8 11
In the cities, average per month, to females....	35 66	36 25	1 19
In the cities, highest per year, to males.....	2,200 00	2,000 00	200 00
In the cities, highest per year, to females.....	1,200 00	1,200 00	.....

Statistical Summaries.

XXVIII. TEACHERS' CERTIFICATES GRANTED TO APPLICANTS.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, number of third grade, to males.....	2,025	1,763	262
In the counties, number of third grade, to females...	5,602	5,424	178
In the cities, number of third grade, to males	29	13	16
In the cities, number of third grade, to females.....	235	275	inc. 40
In the counties, number of second grade, to males...	356	320	36
In the counties, number of second grade, to females..	380	365	15
In the cities, number of second grade, to males.....	20	13	7
In the cities, number of second grade, to females...	68	71	inc. 3
In the counties, number of first grade, to males	148	148	.....
In the counties, number of first grade, to females....	68	64	4
In the cities, number of first grade, to males.....	25	16	9
In the cities, number of first grade, to females.....	17	14	3
State certificates granted to males, five years.....	16	17	inc. 1
State certificates granted to females, five years.....	25	31	inc. 6
State certificates granted to males, unlimited	37	26	11
State certificates granted to females, unlimited	34	16	18
Whole number of third grade granted	7,891	7,475	416
Whole number of second grade granted.....	21	769	55
Whole number of first grade granted	258	242	16
Whole number of State certificates granted	112	89	23
Aggregate number of certificates granted	9,085	8,581	504
In the counties, number of teachers reported as having State certificates.....	121	166	inc. 45
In the cities, number of teachers reported as having State certificates	31	42	11

There has been a decrease the past year in the number of teachers employed in the public schools, as well as in the number applying for certificates to teach. These facts are due mainly to teachers seeking more remunerative positions in the trades and professions, made so by the revival in the business prosperity of the country.

XXIX. NORMAL SCHOOL TEACHERS EMPLOYED.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, number of graduates of these schools	169	181	12
In the cities, number of graduates of these schools..	128	149	inc. 21
In the counties, number of undergraduates of these schools.....	1,211	990	221
In the cities, number of undergraduates of these schools.....	50	63	inc. 13
Whole number of teachers from Normal Schools....	1,558	1,383	175

Statistical Summaries.

XXX. TEACHERS' CERTIFICATES REFUSED TO APPLICANTS.

DESCRIPTION.	1880.	1881.	Decrease.
In the counties, for third grade, to males.....	1,017	575	442
In the counties, for third grade, to females.....	3,157	1,781	1,376
In the cities, for third grade, to males.....	6	2	4
In the cities, for third grade, to females.....	54	27	27
In the counties, for second grade, to males.....	67	71	inc. 4
In the counties, for second grade, to females.....	88	96	inc. 8
In the cities, for second grade, to females.....	3	.....	3
In the counties, for first grade, to males.....	27	26	1
In the counties, for first grade, to females.....	21	9	12
Whole number refused to males.....	1,117	674	443
Whole number refused to females.....	3,323	1,913	1,410
Aggregate number refused to both sexes.....	4,559	3,748	811

XXXI. NUMBER OF TEACHERS HOLDING STATE CERTIFICATES.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, as reported by the superintendents..	121	166	45
In the cities, as reported by the superintendents.....	31	42	11
Totals.....	152	208	56

These statistics show the number of those actually teaching, who are known to the county and city superintendents as having State certificates in force. A much greater number than is here given, hold these certificates. Among the tables of this Report is one which furnishes, with other items of interest, the names of the persons to whom such certificates have been issued by the State Superintendents since 1868, and as far as those limited to five years, have not yet expired. This table classifies the teachers who obtained their certificates in accordance with the four different provisions of law: (1) By State examination; (2) By countersigning their diplomas from the State University; (3) By countersigning their diplomas from the Private or Denominational Colleges of the State; (4) By countersigning their certificates and diplomas from the State Normal Schools. Under

Statistical Summaries.

the first method of granting these certificates, the number given is 71; under the second, 55; under the third, 47; and under the fourth, 329,—a total of 502.

XXXII. AVERAGE EXPERIENCE IN YEARS OF TEACHERS IN THE CITIES.

DESCRIPTION.	1880.	1881.	Increase.
Average time male teachers remain in the school...	4.2	4.5	.3
Average time female teachers remain in the school...	4.5	4.8	.3
Average experience of male teachers in school.....	8.5	7.9	dec. .6
Average experience of female teachers in school....	5.5	5.4	dec. .1

XXXIII. VISITS OF COUNTY SUPERINTENDENTS.

DESCRIPTION.	1880.	1881.	Increase.
Number of different schools visited	4,916	5,468	552
Number of different visits to the schools.....	...	8,478	.....

XXXIV. DISTRICT AND TOWN LIBRARIES.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, number of town libraries...	26	31	5
In the counties, number of school-district libraries.....	273	222	dec. 51
In the cities, number of school-district libraries	19	21	2
In the counties, number of volumes in the libraries.....	15,850	15,651	dec. 199
In the cities, number of volumes in the libraries.....	5,482	5,701	219
In the counties, number volumes added the past year.....	1,549	1,803	254
In the cities, number volumes added the past year	363	403	40
In the counties, amount expended for libraries	\$1,287 46	\$1,431 92	\$144 46
In the cities, amount expended for libraries	401 00	549 00	148 00
In the counties, cash value of all the libraries	13,141 98	13,895 25	753 27
In the cities, cash value of all the libraries.....	5,620 00	6,496 75	876 75
Total value of libraries in the counties and cities	18,761 98	20,392 00	1,630 02

Statistical Summaries.

XXXV. AGGREGATE OF RECEIPTS FOR PUBLIC SCHOOLS.

DESCRIPTION.	Counties.	Cities.	Totals.
Amount on hand August 31, 1880,	\$448,823 98	\$210,442 76	\$659,266 74
Taxes levied for building and repairs	162,364 85	8,075 00	170,439 85
Taxes levied for teachers' wages..	892,563 21	20,525 00	913,088 21
Taxes levied for apparatus and libraries	18,171 07	279 00	18,450 07
Taxes levied at annual meetings..	72,491 57	320,210 58	392,702 15
Taxes levied by county supervisors	171,836 79	88,913 68	260,750 47
Income from public school fund.	156,201 05	43,152 50	199,353 55
Income from all other sources...	187,816 52	40,618 16	228,434 68
Totals	\$2,118,349 37	\$733,349 11	\$2,851,698 48

XXXVI. COMPARATIVE AGGREGATE OF RECEIPTS.

	1880.	1881.	Increase.
In the counties	\$2,075,804 12	\$2,118,349 37	\$42,545 25
In the cities	621,996 46	733,349 11	111,352 65
Totals	\$2,697,800 58	\$2,851,698 48	\$153,897 90

XXXVII. AGGREGATE EXPENDITURES FOR PUBLIC SCHOOLS.

DESCRIPTION.	Counties.	Cities.	Totals.
For building and repairs	\$197,165 09	\$20,733 41	\$217,898 50
For services of male teachers ...	475,232 12	121,811 50	13,433 63
For services of female teachers..	741,818 14	279,371 09	597,093 62
For apparatus and libraries	11,570 47	1,862 29	1,021,189 23
For old indebtedness	48,982 72	11,294 09	60,276 81
For furniture, registers, etc.....	34,361 68	9,053 34	43,415 02
For all other purposes	210,369 91	114,629 22	324,999 13
Amount on hand, August 31, 1881	396,297 70	184,697 20	580,994 90
Amount paid out the past year.	\$1,741,359 04	\$560,698 33	\$2,302,057 37
Amount paid out and on hand.	\$2,137,656 74	\$745,395 53	\$2,883,052 27

Statistical Summaries.

XXXVIII. COMPARATIVE AGGREGATE OF EXPENDITURES.

	1880.	1881.	Increase.
In the counties	\$2,074,488 36	\$2,137,656 74	\$63,168 38
In the cities	724,827 48	745,395 53	20,568 05
Totals.....	\$2,799,315 84	\$2,883,052 27	\$83,736 43

XXXIX. APPORTIONMENT OF SCHOOL FUND INCOME.

DESCRIPTION.	1880.	1881.	Increase.
Amount apportioned	\$191,917 60	\$199,941 66	\$8,024 06
On what number of children	479,741	481,793	2,052
Rate apportioned per child, in cents ...	40	41½	1½

XL. TOTAL EXPENDITURES FOR PUBLIC EDUCATION.

DESCRIPTION.	1880.	1881.	Increase.
Expenditures for public schools .	\$2,161,071 88	\$2,302,057 37	\$140,985 49
Salaries of county superintendents.....	46,700 00	47,050 00	350 00
Salaries of city superintendents..	12,955 00	14,025 00	1,070 00
Incidental expenses of superintendents.....	10,045 21	9,783 25	dec. 261 96
Salaries in office of State Superintendent.....	6,300 00	6,800 00	.....
Incidental expenses of this office.	2,505 90	1,977 12	dec. 528 78
Expenses of examination for State certificates	264 60	175 68	dec. 88 92
Expenditures for teachers' institutes	7,000 00	7,024 27	24 27
Expenditures for State University	97,060 04	78,219 30	d. 18,840 74
Expenditures for State Normal Schools	76,724 74	82,701 84	5,977 10
Expenditures for charitable and reformatory schools.....	182,476 71	121,434 71	d. 61,042 00
Total amounts	\$2,603,104 08	\$2,670,748 54	\$67,644 46

Statistical Summaries.

XLI. AMOUNT EXPENDED IN PUBLIC SCHOOLS FOR EACH CHILD.

DESCRIPTION.	1880.	1881.	Increase.
In the counties, for each child of school age	\$4 23	\$4 48	\$ 25
In the cities, for each child of school age.....	5 48	5 45	dec. 03
In both the counties and cities, for each child of school age	4 48	4 68	20
In the counties, for each pupil in school	6 51	6 97	46
In the cities, for each pupil in school.....	11 51	11 12	dec. 39
In both the counties and cities, for each pupil in school	7 24	7 67	43

XLII. EDUCATIONAL FUNDS.

The amount of these productive funds is stated in the Annual Report of the Secretary of State for this year, as follows :

DESCRIPTION.	1880.	1881.	Increase.
School Fund.....	\$2,747,843 62	\$2,790,213 81	\$42,370 19
University Fund.....	226,460 78	226,796 86	336 08
Agricultural College Fund	267,330 86	271,939 81	4,608 95
Normal School Fund	1,070,674 11	1,098,466 76	27,792 65
Totals.....	\$4,312,309 87	\$4,387,417 24	\$75,107 87

XLIII. INCOMES OF EDUCATIONAL FUNDS.

DESCRIPTION.	1880.	1881.	Increase.
School Fund Income.....	\$193,155 90	\$193,184 07	\$28 17
University Fund Income.....	64,799 03	66,992 18	2,193 15
Agricultural College Fund Income....	15,472 98	15,968 27	495 29
Normal School Fund Income.....	81,956 66	83,054 90	1,098 24
Totals.....	\$355,384 57	\$359,199 42	\$3,814 85

Statistical Summaries.

XLIV. UNPRODUCTIVE EDUCATIONAL FUNDS.

This table shows the amount of the unproductive capital of the several funds in the form of unsold lands and cash in the State Treasury, on the 30th of September last.

DESCRIPTION.	Value of Lands.	Cash in Treasury.	Aggregate in 1881.	Aggregate in 1880.
School Fund.....	\$217,099 03	\$152,568 87	\$369,667 90	\$270,850 20
University Fund.	7,732 55	31,353 82	39,086 67	30,611 63
Agricultural College Fund	30,470 45	35,365 80	65,836 25	53,260 34
Normal School Fund.....	552,754 90	106,701 07	659,455 97	609,088 05
Totals..	\$808,057 23	\$325,989 56	\$1,134,046 79	\$971,810 22

XLV. RECEIPTS AND EXPENDITURES OF PRIVATE SCHOOLS.

RECEIPTS.

DESCRIPTION.	Counties.	Cities.	Totals.
From tuition	\$23,300 85	\$17,881 00	\$41,181 85
From donations	12,303 57	2,158 00	14,461 57
From all other sources.....	10,049 90	4,795 00	14,844 90
Totals	\$45,654 32	\$24,834 00	\$70,488 32

EXPENDITURES.

DESCRIPTION.	Counties.	Cities.	Totals.
Teachers' wages	\$35,869 65	\$17,835 00	\$53,704 65
For building and repairs.....	6,808 37	4,678 00	11,486 37
For all other purposes	3,896 49	5,965 00	9,861 49
Totals.....	\$46,574 51	\$28,478 00	\$75,052 51

Statistical Summaries.

XLVI. NORMAL SCHOOL STATISTICS.

The following statistics are gathered from the Annual Report of the Board of Normal Regents, and they embrace items returned from all the State Normal Schools :

DESCRIPTION.	1880.	1881.	Increase.
Number of teachers employed.....	55	59	4
Number of pupils in Model Departments..	796	923	127
Number of pupils in Normal Departments.	1,084	975	dec. 109
Total number of pupils in both Departments	1,880	1,898	18
Number of graduates in Elementary Course	65	67	2
Number of graduates in Advanced Course .	13	23	10
Whole number of graduates.....	78	90	12
Aggregate salaries of teachers	\$57,869 00	\$58,756 20	\$887 20
Expenses for building and repairs.....	6,276 63	10,720 68	4,444 05
Expenses for apparatus and cabinets.....	838 16	235 74	dec. 602 42
Expenses for incidentals	9,031 54	10,324 33	1,292 79
Aggregate expenditures.....	74,015 33	80,046 95	6,031 62
Receipts from tuition	8,889 20	8,067 95	dec. 821 25
Receipts from other sources.....	3,683 40	3,668 88	dec. 14 52
Aggregate receipts from all sources.....	12,572 60	11,736 83	dec. 835 77
Aggregate income and receipts	81,956 66	83,054 90	1,098 24

XLVII. STATE UNIVERSITY.

DESCRIPTION.	1880.	1881.	Decrease.
Number of instructors.....	37	38	inc. 1
Number of students in Preparatory Classes.....	105	33	72
Number of students not in Regular Classes.....	93	180	inc. 87
Number of students in Freshman Class.....	83	78	5
Number of students in Sophomore Class.....	63	56	7
Number of students in Junior Class.	48	55	inc. 7
Number of students in Senior Class	37	40	inc. 3
Number of students in Law Class...	52	64	inc. 12
Whole number of students in all Classes.....	481	442	39
Number of graduates at last Commencement.....	71	79	inc. 8
Whole number of graduates.....	726	805	inc. 79
Number of volumes in library.....	10,000	10,802	inc. 802
Cash valuation of site.....	\$50,000 00	\$50,000 00	.....
Cash valuation of land, not including site	41,000 00	38,000 00	\$3,000 00

Statistical Summaries.

XLVII. STATE UNIVERSITY — Continued.

DESCRIPTION.	1880.	1881.	Decrease.
Cash valuation of buildings.....	300,000 00	300,000 00	.....
Cash valuation of apparatus, etc.....	50,000 00	50,000 00	.....
Amount of endowments and other funds	449,091 64	504,086 67	inc. 54,945 03
Amount of income from these funds.	29,727 12	30,169 38	inc. 442 26
Amount of income from tuition and incidental fees.	4,381 30	4,915 00	inc. 534 70
Whole amount of income.....	80,106 24	82,669 81	inc. 2,563 57
Amount paid for instruction.....	49,502 40	47,998 00	1,504 40
Amount paid for building and repairs	25,136 14	5,371 60	19,764 54
Amount paid for incidental expenses	29,421 50	24,849 70	4,571 80
Whole amount of expenses.....	97,060 04	78,219 30	18,840 74

XLVIII. COLLEGES AND UNIVERSITIES.

DESCRIPTION.	1880.	1881.	Increase.
Number of institutions reporting..	16	17	1
Number of instructors reported ...	153	173	20
Number of students in Preparatory Classes.	1,021	1,092	71
Number of students in Regular Classes.....	230	255	25
Number of students in Freshman Classes.....	257	282	25
Number of students in Sophomore Classes	175	179	4
Number of students in Junior Classes.....	178	176	dec. 2
Number of students in Senior Classes.....	129	151	22
Whole number of students in all Classes.....	2,211	2,687	476
Number of graduates at last Commencement	169	174	5
Whole number of graduates.....	2,256	2,574	318
Number of acres of land owned by the institutions	33,202½	32,370 7/10	dec. 832 1/2
Cash valuation of lands.	\$320,150 00	\$376,700 00	\$56,550 00
Cash valuation of buildings	665,000 00	778,000 00	113,000 00
Cash valuation of apparatus, cabinets, etc.....	82,050 00	100,975 00	18,925 00
Amount of endowments and other funds	842,221 95	866,065 75	23,783 80
Income from the funds	54,756 45	64,636 43	9,879 98
Income from tuition and incidental fees.....	77,549 98	18,894 78	dec. 58,655 20

Statistical Summaries.

XLVIII. COLLEGES AND UNIVERSITIES — Continued.

DESCRIPTION.	1880.	1881.	Increase.
Income from all other sources....	57,664 50	125,911 17	68,247 67
Whole amount of income from all sources.....	140,052 67	209,442 33	69,389 71
Amount paid for instruction.....	93,295 88	106,639 79	13,343 91
Amount paid for building and repairs.....	39,324 41	53,963 60	14,139 19
Amount paid for incidental expenses.....	41,074 75	33,430 46	dec. 7,644 29
Whole amount of expenses for all items.....	217,323 06	206,267 03	dec. 11,056 03

Marquette College, in Milwaukee, was opened in September last, and consequently makes no report this year. It has a faculty of five members, and sixty-two students this fall term.

XLIX. OTHER PRIVATE INSTITUTIONS THE PAST YEAR.

DESCRIPTION.	Theological Seminaries.	Academies.	Business Colleges.
Number of Institutions reporting.....	4	17	7
Number of instructors reported.....	21	98	31
Number of students in Regular Classes.....	176	910	.....
Number of students in Preparatory and other Classes.....	108	709	.....
Whole number of students.....	284	1,628	1,198
Number of graduates the past year....	48	53	24
Whole number of graduates.....	590	293	371
Number of volumes in libraries.....	14,432	5,965	956
Number of scholarships used.....	.....	45	403
Number of acres of land owned.....	693	566 3/4	.....
Cash valuation of lands.....	.....	\$98,550 00	.....
Cash valuation of buildings.....	\$204,000 00	241,200 00	.....
Cash valuation of apparatus, etc.....	.....	7,075 00	\$1,500 00
Amount of endowments and other funds.....	57,671 00	45,000 00	.....
Income from these funds.....	3,800 00	.....	.....
Income from tuition and incidental fees....	150 00	30,649 50	22,594 74
Whole amount of income.....	14,583 00	49,805 68	.....
Amount paid for instruction.....	9,000 00	10,535 00	7,245 00
Amount paid for buildings and repairs..	1,500 00	7,548 00	.....
Amount paid for incidental expenses..	5,916 00	620 20	4,874 74
Whole amount paid for all items.....	16,416 00	48,181 20	17,719 74

Statistical Summaries.

L. HIGH SCHOOLS.

DESCRIPTION.	1880.	1881.	Increase.
Number of high schools receiving State aid.....	91	78	dec. 13
Number of high schools not receiving State aid.....	19	39	20
Number of male teachers employed in the former schools.....	111	95	dec. 16
The same in the latter schools.....		48	
Number of female teachers employed in the former schools.....	96	82	dec. 14
The same in the latter schools.....		38	
Whole number of teachers employed in both kinds of schools.....		263	
Number of pupils registered in the former schools.....	6,730	5,393	dec. 1,337
The same in the latter schools.....		2,809	
Whole number of pupils registered in both kinds of schools.....		8,202	
Average daily attendance of the pupils of the former schools.....	48.9	45.5	3.4
The same in the latter schools.....		50.1	
Number of days the former schools were kept.....	16,003	13,729	2,274
The same in the latter schools.....		7,077	
Number of pupils in common branches only in the former schools.....	2,535	1,892	643
The same in the latter schools.....		1,674	
Number of pupils in algebra and geometry in the former schools.....	2,449	1,800	649
The same in the latter schools.....		1,005	
Number of pupils in natural sciences in the former schools.....	3,065	2,413	dec. 652
The same in the latter schools.....		1,227	
Number of pupils in modern languages in the former schools.....	1,023	630	dec. 393
The same in the latter schools.....		525	
Number of pupils in ancient languages in the former schools.....	1,128	997	dec. 131
The same in the latter schools.....		343	
Number of male graduates this year in the former schools.....	114	123	9
The same in the latter schools.....		36	
Number of female graduates this year in the former schools.....	237	226	dec. 11
The same in the latter schools.....		77	
Total number of male graduates in the former schools.....	615	658	43
The same in the latter schools.....		302	
Total number of female graduates in the former schools.....	1,087	1,414	327
The same in the latter schools.....		407	
Whole number of graduates in both kinds of schools.....		2,781	

Statistical Summaries.

L. HIGH SCHOOLS — Continued.

DESCRIPTION.	1880.	1881.	Increase.
Amount received for tuition in both kinds of schools		\$12,247 06	
Amount of aid received from the State.	\$25,609 20	25,000 00	dc. \$609 20
Salaries paid principals in both kinds of schools		104,045 83	
Whole amount paid for instruction in both kinds of schools		146,871 96	

For the first time, full statistics have been furnished from the high schools not operating under the free high school law, as well as from those thus operating. In part, this has been necessary for the reason that twenty high schools which had received State aid during the five years previous to last December, have been transferred this year from the latter class of schools to the former. According to the provisions of this law, thirty-six other schools, established under it, will, next year, be added also to the former class.

A majority of these schools, which the State has helped from the free high school fund for five years, should receive the same favor for a longer period. They need the money thus paid them in order to retain, in some cases, their present organization, and to maintain, in nearly all, the proper standard of high school instruction. Doubtless, the Legislature of the State would extend the time beyond the five years, if the condition of these schools was laid before its members. During the past year, I have consulted with the boards in charge of several such schools on this subject, and advised them to ask for the desired change in the law. In my judgment, a distinction should be made in this change between the schools sustained by large and wealthy communities and those located where comparatively high taxes are raised yearly for public instruction. In most cases, the former schools do not need the aid, while many of the latter will be enfeebled without it. This

Statistical Summaries.

course would be in compliance with the fundamental object which the law had in view when first enacted, viz., to encourage the establishment and maintenance of free high schools in the smaller villages and more densely populated country districts.

LI. TEACHERS' INSTITUTES.

DESCRIPTION.	1880.	1881.	Decrease.
Number of institutes held by the State.....	64	56	8
Number of institutes in the spring series.....	11	11	.....
Number of institutes in the fall series.....	53	45	8
Number in counties and superintendent districts	57	52	5
Number of one week in duration.....	15	16	inc. 1
Number of two weeks in duration.....	49	40	9
Whole number of weeks in session.....	113	96	17
Number of conductors employed.....	28	28	.....
Number of male teachers enrolled.....	1,134	778	356
Number of female teachers enrolled.....	3,309	2,969	340
Whole number of teachers enrolled.....	4,443	3,757	686
Whole number of teachers required in the counties.....	6,018	5,588	430
Number of teachers holding first grade certificates.....	188	178	10
Number of teachers holding second grade certificates.....	555	383	172
Number of teachers holding third grade certificates.....	2,697	2,284	413
Average age of members of institutes, in years.....	21.3	20.9	.4
Average experience of members in teaching, in months.....	22.9	22.2	.7
Number of members not having taught.....	1,061	904	157
Number having previously attended institutes..	2,983	2,541	442
Number instructed in colleges and universities.	382	240	142
Number instructed in academies.....	305	186	119
Number instructed in normal schools.....	521	467	54
Number instructed in common schools only...	1,178	1,079	99
Number instructed in high schools.....	1,987	1,712	275
Number of institutes not held by the State....	8	11	inc. 3
Number of members enrolled in them.....	478	493	inc.15
Total number of institutes of both kinds.....	72	67	5
Total number of members enrolled in both kinds	4,921	4,290	641

The decrease in the number of the institutes appointed by the State the past year and in the attendance of teachers upon them, is due to several causes. One of these consists in the arrangements made by some county and city superintendents for holding private institutes. The past year, eleven of this kind were opened,

Official Labors.

two in the cities of Kenosha and Racine, and nine in the counties of Clark, Green Lake, La Crosse, Langlade, Lincoln, Ozaukee, Pierce, Sauk, and Waushara. Seven of them were each one week in duration, one two weeks, and two each five or six weeks. These last were in Green Lake and Waushara.

In nearly all the independent cities, the teachers are regularly instructed each year, usually by their city superintendents, in the principles and methods of teaching and school management; and for this reason mainly, they do not generally attend the regular institutes, which are held without exception under the direction of the county superintendents.

During the past two years, the subjects discussed in the institutes appointed by the State have been very largely taken from the primary work of the public schools; and while these subjects have been practical and the treatment of them very instructive, they have not interested a certain class of teachers who have failed to be enrolled in the institutes.

OFFICIAL LABORS.

I. MAP OF WISCONSIN.

During the year ending December 10, 1831, seventy-nine copies of Nicodemus and Conover's Map of the State have been sold to school boards and public officers. The price per copy was \$4; and the avails of the sale, \$316, have been deposited with the State Treasurer, and his receipt therefor is placed on file in this office. Since February, 1879, when the State purchased 700 copies of this work, 230 of them have been sold, and the money received for them, \$920, paid over to the State.

II. WEBSTER'S UNABRIDGED DICTIONARY.

On the 10th of December, a year ago, 146 copies of this Dictionary, a portion of the 600 authorized to be purchased by the Legislature on the 19th of February, 1880, were remaining in the

Official Labors.

office. This body directed the State Superintendent, on the 25th of last February, to buy at the price mentioned, in behalf of the State, 400 additional copies of this work, to be supplied to school-districts. During the past year ending December 10th, I have distributed 211 copies to districts which have never received the Dictionary from the State, and sold 236 copies to districts which have formerly been furnished. The amount, \$1,652, accruing from the sale of the latter at \$7 per copy, has been handed to the State Treasurer, and duly credited by him. The number of these dictionaries in my care, on the last date above mentioned, is 99.

Under the authority granted by the Legislature, February 19, 1880, I have procured, the past year, from the publishers of this Unabridged Dictionary, 241 copies, which have been sold at \$7.00 a piece, the price paid, to the members of this body and the employes thereof and of the different State Departments. The money received by me, \$1,687.00, has been remitted directly to the publishers.

III. COLLECTING STATISTICS FOR THE CENSUS OFFICE.

In the last ten months of this year, a large amount of work has been performed in this office toward aiding the General Government in collecting statistics of the public schools of the State for the Census of 1880. I was supplied with three kinds of schedules, which I sent to the superintendents of the cities, to the boards in charge of the high schools, and to the clerks of the districts in which only elementary schools are taught. These schedules, after being filled out, were returned to me. I had them carefully examined, corrected when inaccurate as far as I was able, classified by cities and counties, and forwarded to Washington. On the questions proposed in them by the United States Census Office, I secured complete and reliable returns from the cities and high schools; and as full and accurate as could be reported, under the circumstances, from the elementary schools. I undertook

Official Labors.

this labor for the purpose of having the condition of our public schools appear, in as perfect and satisfactory form as could be reached, in the forthcoming reports of the Census of this country.

IV. EXAMINATION FOR TEACHERS' STATE CERTIFICATES.

The Annual Examination of applicants for these Certificates was held for four days, beginning the 9th of August last, and was conducted by Supt. James T. Lunn, of Ironton, Sauk county; Prof. Jesse B. Thayer, of River Falls; and Prof. E. Barton Wood, of Oshkosh. The cities of Madison, Eau Claire, and Oshkosh, were selected as the places for the meetings of these applicants; and each meeting was in charge of a member of the above mentioned Board of Examiners. In the week following, all the members held a session at Madison, examined the papers written by the applicants, and passed their decision thereon. At this time they completed their report to the State Superintendent, in which they submitted the following items, with others:

"1. The rules of the preceding examination were adopted for conducting this examination.

"2. On the basis thus fixed, we have the pleasure to recommend that an unlimited certificate be issued to Thomas J. Walsh, of Two Rivers, Wis.; and also that limited certificates be issued, in accordance with the exhibit of standings hereto annexed, to the following: Thomas Voegelé, Fountain City; James S. Thomas, Reedsburg; Joseph H. Gould, Oconto; Winsor W. Calkins, Randolph; Adolph R. Wittman, Manitowoc; H. L. Terry, Lowell; Henry C. Walsh, Two Rivers; and Patrick H. Hewitt, Manitowoc.

"3. As the result of this year's experience, we heartily approve the plan inaugurated this year; and recommend that the distribution be similarly made with reference to the convenience of the applicants."

Official Labors.

V. A DECISION IN AN APPEAL CASE SUSTAINED BY THE SUPREME COURT.

On the 25th of February last, I reversed, in the decision of an appeal case, the order of the town board of Clarno, Green county, altering the boundaries of a school-district in that town, and forming a new district. Parties in that town, interested in sustaining the action of the board, sued out in June last a writ of common-law *certiorari* of the Supreme Court of the State, requiring me, as State Superintendent, to certify to this Court the records of said appeal and my proceedings thereon. I made in due time the proper return to the Court, which has since rendered its decision, after a full review of the case.

The plaintiffs argued (1) that the State Superintendent, in denying to the parties a personal hearing on the appeal, exceeded his jurisdiction; (2) that the forming and altering of school-districts are not properly part of the supervision of public instruction, but are matters of law; (3) that in deciding appeals upon such subjects, this officer must construe, interpret, and apply the law, and determine questions involving personal rights; (4) that the powers thus exercised are judicial in their character, and the statute conferring them is in violation of the State Constitution, by which all judicial power is vested in certain courts; (5) that the portion of section 497, Revised Statutes, which gives to the Superintendent power to prescribe the manner of taking and hearing appeals, is in effect a delegation of legislative power, and is therefore void; (6) that the decision of the Superintendent on the appeal was rendered not in accordance with the merits of the case; (7) and that the decision given was not that of the Superintendent, but of a clerk employed in his office.

The Supreme Court unanimously affirmed my decision; and on the points argued by the plaintiffs, gave its opinion at length, of which the following is a very brief summary, given in the order of the points presented above, not in this opinion: (1) In this case the Superintendent "acted in strict accordance with the

Official Labors.

rules adopted and duly published under his authority," and "in the manner of such hearing and taking the testimony, no personal, common-law, or constitutional right has been infringed;" (2) The Superintendent has "the same power and discretion in deciding whether such district should be changed, altered, or divided, as the town board had in making its decision;" (3) "The constitutional question whether such a jurisdiction could be constitutionally conferred upon this officer is virtually disposed of by the ruling that he is authorized to act only in *quasi-judicial* capacity." (4) The office of the writ from this Court does "not warrant a review of the mere questions of fact where there is any contention as to the proof, or the reversal of the judgment or determination of the officer upon the *merits* of the case;" (5) "It was eminently proper for the Legislature to confer this power of final disposition of changes in school-districts on this officer." (6) The Superintendent "appears to have acted in strict compliance with the law; and there does not appear to have been any constitutional provision violated, either in giving him such a jurisdiction or in his manner of hearing the appeal;" (7) "The return of that officer shows that it was his personal and official action, and the decision is subscribed by him in due form." The Court incidentally refers to the evidence submitted in this case, and finds satisfactory reasons for my decision in setting aside the order of the town board.

VI. OFFICE WORK.

A large portion of my time the past year has been given to office duties. The work has now increased beyond the capacity of those employed here to perform it, without remaining almost daily at their desks until quite late at night. However, every item of business has received prompt attention.

The preparation of the tables and other materials for my Annual Report, has been delayed, in part, by the labor which I have been compelled, in the last quarter of the year, to expend upon official business requiring immediate consideration; and, in part,

Official Labors.

by the numerous difficulties experienced in procuring the statistical returns from school officers. No one, without the trial, can form a conception of the amount of work which must be done in gathering and correcting oftentimes the reports from our public and private schools, before they are embodied in the Annual Statement from this office. These returns for this year are finally compiled, largely by the aid of the county and city superintendents, from at least 7,300 special reports, made by district and town clerks; by teachers in the private schools; by the superintendents themselves; by the institute conductors; by the heads of Colleges, Academies, Theological Seminaries, and Commercial Schools; by the presidents of the Normal Schools; by the boards in charge of the State Literary and Charitable Institutions; and by other State Officers.

The request made last winter upon the Legislature to furnish the State Superintendent with additional clerk hire, was a most reasonable one; and the refusal to grant it has inflicted injury this year upon the office. A bill authorizing such hire passed unanimously in the Senate, and would promptly have been concurred in by the Assembly, if the committee having it in charge had permitted it to come to a vote in that body. It is hoped that the members of the next Legislature will grant the needed help, and thus treat the office with the consideration, similar to that which has long been shown to the other State Departments, in increasing their efficiency.

A large share of the work of the office, such as the decisions of appeal cases, the correspondence on the interpretation of the school laws, and the oversight of many details in the daily transactions, has been placed in the hands of Major S. S. Rockwood, the Assistant State Superintendent. He has proved a very efficient and courteous officer, fully comprehending even the most difficult subjects presented in the School Code of the State, and attending to his duties with unusual accuracy, dispatch, and good judgment. I have also been favored with the exceedingly faith-

Official Labors.

ful and painstaking services of my clerk and messenger, Mr. W. A. Thompson, who has been employed in the office the past two years.

VII. TRAVEL AND LECTURES.

As required by law, and when I could be spared from the office, I have reached localities in at least three-fourths of the counties of the State. I have visited the State University, Normal and Reformatory Schools, portions of the Teachers' Institutes, and some high and elementary schools in the cities, villages, and country districts; attended meetings of the State educational bodies, at nearly all of which I have presented papers; and consulted with school officers and other prominent friends of education in many parts of the State. I have delivered twenty-eight lectures, besides a goodly number of short addresses, before schools, institutes, and assemblies of the people. I have endeavored, on such occasions, to describe the existing condition of our public schools, to point out the generally acknowledged defects in their management, and to explain the leading movements in operation to remedy these defects and to strengthen the schools.

I have pursued the plan adopted last year, of informing myself, as thoroughly as possible, by personal inspection and otherwise, in reference to the educational affairs in the northern sections of the State, and of advancing these affairs with the means in my power, whenever the opportunity has been afforded. I have favored the appointment of institutes in the sparsely settled counties, where the teachers could be gathered together in companies of even fifteen to twenty-five. I have called upon many of the enterprising and intelligent citizens in the villages on the shores of Lake Superior, at the iron mines near the Menomonee River, at points bordering on our dense forest region, and on the lines of railways running into or through it. I have studied the prospective resources of wealth in all of these localities, observed the character of the population settling in them, and become acquainted with their views and efforts respecting public education.

Observations on the Present Condition of the Public Schools.

I have thus been enabled frequently to advise the introduction of better methods of classification and instruction both in the supervision of schools already organized, and in the establishment of those in the process of formation in the northern counties. I have prosecuted this work in the confident belief that my services would be more useful to the State in thus aiding the schools in the newer settlements, than if they were given exclusively to the older counties.

VIII. CIRCULAR ON SCHOOL-HOUSES.

Among the documents accompanying this Annual Report, is an elaborate "Circular on Plans and Specifications of School-houses," which I have prepared this year for the use of our country districts, villages, and small cities. The State has ordered the publication of an extra edition of 2,000 copies of the circular by itself, to be placed in the hands of our citizens who will not have access to this Report, and who are particularly interested in the erection of more attractive and more comfortable structures for our public schools. As far as possible, the pamphlet will be sent to the responsible carpenters and builders in the places above mentioned, with the view of helping them to guide district boards in the selection and construction of better models. The reasons which have led me to furnish the circular and the means which I have employed in securing materials for it, are explained in the preliminary statements of the work. I trust that it will receive the approval of the people of the State.

OBSERVATIONS ON THE PRESENT CONDITION OF THE PUBLIC SCHOOL SYSTEM.

I. ADDITIONS TO THE SCHOOL LANDS.

His Excellency, Wm. E. Smith, has exceeded the expectations of very many people of the State in closing his efforts the past year in securing large amounts of land in settlement of our

Observations on the Present Condition of the Public Schools.

claims against the General Government for indemnity in the deficits in the sixteenth section of the townships, and for swamp and overflowed lands which have never been transferred to the State. In 1879, it was announced that 37,089.09 acres had been acquired and placed to the credit of the School Fund, as the indemnity mentioned above; and that their value was estimated at \$46,361.36. "The right of the State to 5,653.94 acres more, on the same account, within Indian reservations, was confirmed, for the present subject to occupancy by the Indians."

The last Annual Report of the Commissioners of the Public Lands, contains the following statements on these subjects:—

"We can now announce a much greater acquisition, the result of the claim prosecuted the past two years, and alluded to in former reports by us; this time 368,985.04 acres of land, with favorable promise of more, to the credit of the grant of 1850, of swamp and overflowed lands, to be divided, pursuant to section 250 of the Revised Statutes, between the Normal School and Drainage Funds.

"Within the past month, on account of the lands thus found to be due the State, approved lists of selections of vacant lands, amounting to 176,510.17 acres have been received; and lists for 71,560.26 acres, selections agreed to, but awaiting the Government's examination of its own title, as indemnity for swamp lands sold by the United States, are daily expected. In addition to these, the claim for 120,914.61 acres, sold by the United States prior to March 3, 1857, is admitted, and indemnity in cash, the money for which they were sold by the United States, is also promised at an early day. These figures show for the State a gain of 368,985.04 acres of land, or the equivalent of part in cash, to be taken upon the books of this department, and accounted for in future reports.

But, besides these allowances, there will remain 154,175.96 acres, of which the State may receive a considerable part, or all. These latter lands lie within grants by Congress to aid in the construction of railroads, the Fort Wilkins and Fort Howard wagon road, and the Sturgeon Bay and Lake Michigan ship canal, and within Indian reservations. It is now expected that such of these lands, probably 30,000 acres, as have not already been certified or patented by State authority to the respective corporations claiming them, will soon be approved to the State. Congressional action may be required for the adjustment of the remaining differences.

The portions of these lands which will, according to the statute, accrue to the Normal School Fund, should never be diverted

Observations on the Present Condition of the Public Schools.

to other objects. The avails will be needed to strengthen the Normal Schools now established, and to aid in the organization and support of at least two other such schools, in portions of the State where they are already needed. Such use of these lands should be regarded as unalterably settled by the past action of the State in creating this Fund.

II. FINES COLLECTED FOR BREACH OF PENAL LAWS.

In my last Annual Report, I stated that Hon. Alex. Wilson, the Attorney General of the State, had petitioned our Supreme Court to issue an alternative writ of mandamus against one of the county treasurers, with the view of compelling him to make the report and payment to the State, as required by law, of the clear "proceeds of the fines, penalties, and forfeitures," collected by him during the previous year, and which he had withheld on the generally accepted interpretation of the provisions of the Revised Statutes relating to this subject. I said also that, "This will be regarded as a test case in determining the duties of all the county treasurers in the matter."

On the 4th of June last, the Supreme Court, after a full hearing of the case, filed its unanimous opinion, extracts from which are here presented :

"The Constitution provides that the clear proceeds of all fines collected in the several counties for any breach of the penal laws, shall constitute a part of the School Fund of the State.

"The statute provides that it shall be the duty of the county treasurer to transmit to the State Treasurer, at the time he is required by law to pay the State taxes, a particular statement, verified by his affidavit indorsed upon or attached thereto, of all moneys received by him during the preceding year, and which are payable to the State Treasurer, for licenses, fines, penalties, or on any other account, and at the same time pay to the State Treasurer the amount thereof after deducting the legal fees. The legal fees which the county treasurer may retain out of such moneys, are two per cent. thereof.

"No deduction for the benefit of the county can lawfully be made by the county treasurer from the fines paid to him unless the same is authorized by law. It is for the Legislature to determine what deductions are to be made, and not the county treasurer or the county board of supervisors. Even the

Observations on the Present Condition of the Public Schools.

power of the Legislature in this respect is limited as appears from the cases of *Lynch vs. The Steamer Economy*, 27 Wis., 69, and *Dutton vs. Fowler, id.*, 427. To permit each board of supervisors to determine for itself, or each county treasurer for himself, what expenses shall be deducted from fines collected, would be to introduce inextricable confusion. Under such a system there would be no fixed, certain rules by which the "clear proceeds" of fines could be determined. Or, what is very probable, there would be no such "clear proceeds" left for the School Fund. The system would be unjust and intolerable, and its practical effect would be, doubtless, to dry up one of the sources which the Constitution has ordained to replenish and increase the School Fund of the State.

"The Legislature has provided for no deduction from such fines except two per cent. thereof, which the treasurer may retain. Hence, under existing laws, the clear proceeds of fines received by the county treasurer is ninety-eight per cent. thereof, which must be paid into the State Treasury for the benefit of the School Fund.

Since the decision of the Court, many of the counties have paid to the State Treasurer the fines collected during the year 1880. The amount so paid, September 30th, last was \$10,833.80. At least \$5,000 more are due from delinquent counties for that year. It is estimated that \$100,000 should be received by the State, on the sums collected for fines and penalties and unpaid by counties, prior to 1880. Hereafter, a respectable addition to the School Fund may be expected each year from this source.

III. ANNUAL MEETING OF SCHOOL-DISTRICTS.

Last winter, I advised against the passage of a bill, which received the favorable consideration of one branch of the Legislature, fixing the time of the Annual Meeting of all the school-districts, except those maintaining graded schools, on the last Monday of August in each year. The ground of my opposition to the bill consisted in the fact that it did not remove the confusion now experienced in holding these meetings at three different times in the year; and also in the reasons that, when the change is made, one day for the meeting of all the districts, having graded or ungraded schools, should be selected, and this should be fixed early in the summer, in a week when the farming community are not

Observations on the Present Condition of the Public Schools.

too busy to attend. In various ways, this subject has, this year, been kept before the attention of portions of the people, particularly district officers and county superintendents, who seem in some sections ready for the change. The leading arguments for holding the meeting in June or in the first week of July, are these: (1) It will give an opportunity for the statistics from the school-districts to reach the State Superintendent by the first of September each year, and by him incorporated into his Annual Report before the session of the Legislature in January following. (2) District boards can make suitable arrangements for teachers and repairs on the school-houses some months before their schools are opened in the fall; and in case of new members on the boards, they will have time to become acquainted with the needs of the schools before the beginning of the next term. (3) It will tend to discourage the keeping of school in the hot months of July and August, and lead many more districts to add a fall term to their schools. (4) Teachers can secure their schools early in the season, and not wait in harrassing uncertainty for positions until late in the summer or the middle of the fall.

IV. FORMER RECOMMENDATIONS OF IMPROVEMENTS.

I desire to call attention simply to the following recommendations which I have presented in my previous Annual Reports, and which have either not yet been adopted, or in some cases not put fully into operation in the State:

1. The certification of a less number of teachers annually, so as to encourage the better prepared and the more experienced to remain longer in the employment of the school boards.

2. The gradual raising of the standard of qualifications of teachers, as determined in their examinations by the county and city superintendents.

3. The plan of purchasing text-books by the districts, and then furnishing them, free of charge, to the pupils of our public schools.

Observations on the Present Condition of the Public Schools.

4. The enactment of some provision in the law which shall constrain a larger number of teachers to attend the institutes each year.

5. Changes in the compulsory education law, so that at least one-half of the minimum attendance of the children upon school for twelve weeks in each school year, shall be consecutive; and so that special officers may be appointed, particularly in our cities, whose duties shall be to look after the truant or delinquent children, to prosecute parents and guardians for violations of the law in not sending their children to school the required time, and to prevent the owners or managers of mills, factories, and other mechanical establishments, from employing, contrary to the law, children under the specified age.

6. Defining by law the qualifications of the county and city superintendents, such as requiring them to be graduates of the Normal Schools, Colleges, or Universities; or to pass an examination for a State certificate; or to have a successful experience, at least two years, in the supervision of schools.

7. The law permitting a county having over fifteen thousand inhabitants to be divided into two superintendent districts, to be made compulsory, provided more than one hundred twenty-five schools are in the county.

8. The enactment of a provision of law, by which an annual tax of two mills on the dollar shall be levied upon the taxable property of the State, for the support of the public schools; and one-half of the sum received from this tax shall be distributed by the State among the school-districts on the basis of the attendance of the children for a specified time.

V. TOWNSHIP SYSTEM OF SCHOOL GOVERNMENT.

Our State has tried for twelve years the experiment of introducing, by the voluntary method, the township system of school government. The following is the result, giving the names of the counties and the towns therein which have adopted the system

Observations on the Present Condition of the Public Schools.

and continue it still in force, and the number of the subdistricts in these towns:

COUNTIES.	TOWNS.	No. of sub-districts.
Ashland.....	Ashland, Butternut	6
Barron	Prairie Farm, Rice Lake.....	16
Burnett.....	Bashaw	2
Chippewa.....	Big Bend, Eagle Point, Flambeau, Sigel.....	39
Langlade.....	Polar, Antigo.....	12
Lincoln.....	Pine River.....	5
Marathon.....	Stettin, Wien.....	8
Polk.....	Clear Lake, Clam Falls.....	6
Price.....	Fifield, Worcester, Brennan.....	10

A few towns in other counties have inaugurated the system, but have abandoned it for various reasons, the principal one of which is its unlikeness in some points to the existing control of the schools in the vast majority of the districts.

The experience of the State has confirmed my conviction from the beginning that this system would never obtain, on the optional plan, a general foothold in our towns. Our citizens must accept the methods employed by other States for its adoption, before its superior advantages will be known throughout our own State. A law enforcing its introduction into all the towns, where not now in operation, would doubtless receive at first considerable opposition, but it would shortly be acquiesced in by the school-districts. The arguments for the system I have presented in my former Annual Reports, and also for this procedure of the State in making it obligatory. It seems to me that the people are as well prepared now as they will be at any time in the next dozen years, to adopt the changes, and to use them profitably in their management of the public schools.

VI. KINDERGARTEN INSTRUCTION.

The essential features of the Kindergarten training have been quite freely discussed, in the past three years, by our prominent

Observations on the Present Condition of the Public Schools.

teachers at the meetings of their Associations. A strong sentiment favorable to it has already been created in many localities. Some of our most intelligent and public spirited people, particularly women in a few of the larger cities, have become thoroughly enlisted in the work of establishing this system of instruction. Several private Kindergartens have been in operation for some time in these cities; and their adaptability to the child nature, and their very great superiority over the ordinary school methods of developing the child's senses, moral emotions, and the first unfoldings of his intellect, have been carefully tested. The Normal School Board acted, over a year since, with excellent wisdom in organizing a Kindergarten in connection with the Oshkosh Normal School, where its advantages could be intelligently observed. The results have surpassed the expectations of its advocates. This Board, in erecting this year an addition to the building for the Platteville Normal School, has provided a spacious and beautiful apartment for the children who will be received into a school of this kind.

The crowning work in this State, if not in this country, has been planned, and its initial steps already taken, in the city of Milwaukee, to establish complete and well-furnished Kindergartens under the absolute supervision of the Board of Education, and in close relationship with all the public schools. The warm interest of the teachers of these schools has been fully awakened in favor of the enterprise. A lady of large experience in instructing children, and in training teachers, and of high social standing and great personal worth, has been selected to direct the instruction in these Kindergartens. The conditions under which they will soon be opened, may be seen from the following extract of a report read before the Board of that city :

"In Milwaukee the legal school age is four years. In dealing with the Kindergarten question in Milwaukee, this will prove an immediate and positive advantage. We must repeat here what has so often been said in other connections that the chief problem this Board has to deal with is how the multitude of little children who are sent in larger numbers to our schools each

Observations on the Present Condition of the Public Schools.

succeeding year are to be properly cared for. Your Committee believe that a large increase in the facilities for primary education in Milwaukee should be provided with the least possible delay; and surely, no one will deny that the Kindergarten affords the best mode of mental and moral training for children between four and six years of age. Again, the great mass of the teachers of our schools are in hearty sympathy with the Kindergarten, and many of its ideas and methods have already been practically incorporated with our lowest grade of primary work. This will prove an important factor in introducing the Kindergarten here. The "connecting class" is virtually in existence already, and it will be an easy matter to make such changes in the lowest primary class as are necessary to make it completely fit in as the link between the Kindergarten and the school. So also the School Board has shown its faith in the value of the Kindergarten by its unanimous action in the premises. How fully the public believe in the importance of training adapted to the needs of little children is shown by the numerous private Kindergartens which have sprung up in all parts of the city within a few years. All these circumstances surely give promise of a success which some other cities could hardly expect to realize at the start."

This movement has my heartiest approval. It must be the forerunner of similar efforts in other cities and the villages of the State. The benefits arising from it will be incalculable, if it accomplishes no more than to lead our teachers to have a better insight into the real nature of childhood, and to cultivate in them a more ardent sympathy for "the little ones."

VII. DUTIES OF COUNTY AND CITY SUPERINTENDENTS IN RESPECT TO SCHOOL-HOUSES AND SCHOOL GROUNDS.

The statutes of this State place the school-houses and school grounds under the immediate supervision of the superintendents. In some of the independent cities, the duties of these officers in this respect are specially defined in their charters or in a code of rules adopted by their boards of education. In certain cases, these duties embrace the entire "care and custody" of the houses, furniture, and grounds; and also the oversight of the erection, enlargement, repairing, and furnishing these houses, and of making improvements on these grounds. Even reports are required on any defective arrangements for warming, ventilating, and light-

Observations on the Present Condition of the Public Schools.

ing the school rooms. On this subject very stringent provisions are enjoined upon the county superintendents. They must inquire thoroughly into the condition of the school-houses, sites, out-buildings, and their appendages, in the counties under their respective jurisdiction. They must advise with "the district boards in relation to the construction, warming, and ventilation of the school-houses." They must counsel these boards in respect to the proper plans for "improving and adorning the school grounds." Ample powers are conferred upon them in requiring the districts to provide suitable school-houses and the necessary out-buildings. They can direct the district boards to make any alteration and repairs in these structures, which are, in their opinion, needed for the health, comfort, and progress of the schools; and to abate any nuisances in the school yards, which are a source of injury to the physical and moral natures of the pupils. They can enforce their directions by an order, made in concurrence with the chairman of the town board, condemning any school-house as unfit for school purposes and not worth repairing.

I do not wish to criticise the efforts of our city and county superintendents in securing the erection of more commodious and more attractive school buildings. It must be admitted that commendable progress in this respect has been reached in many of our cities. Still it is rare to find even in them a school-house which is free from some radical defect, as judged by the principles of modern sanitary science. But what shall be said of the houses for our country and village schools? With a few exceptions, they are wretchedly ill-appearing and their accommodations fearfully hurtful. The testimony on this point is complete. The annual reports of our county superintendents represent especially those of our rural districts in the main as "poor affairs and poorly equipped." A vigorous writer in a local paper of this State said, a few years since, that they are "small, pent-up, unventilated, furnished with back-breaking benches, and as uninviting to the child as a prison."

Observations on the Present Condition of the Public Schools.

The desired renovation of our school buildings is, no doubt, a most difficult undertaking. People are adverse to remodeling the plans of buildings after they are erected. As long as the old-fashioned and ill-contrived houses will afford shelter to the children, keep them fairly warm in cold weather, and furnish them with passable accommodations for study and recitation, it may be expected that these houses will be retained in the unprogressive communities. The active and wide-awake citizens in many school-districts, convinced that their school structures are a reproach to them and injurious to their children, are not yet acquainted with the more recent and best approved models in school architecture, nor with the essential improvements in their construction, which the laws of physical comfort and health demand. Changes in the general styles of school buildings are effected slowly and after persistent effort. The kinds of these buildings, with their usual appendages, which are most often seen in our older counties, were planned more than a hundred years ago in some of the Eastern States.

Most favorable opportunities are now furnished for the superintendents to introduce the requisite innovations into our school edifices, as they are repaired or new ones erected. Many of those built thirty and forty years ago by the first settlers, are now dilapidated ; the revival of the business prosperity in the State is inducing a large number of the people to improve their homes and supply better school conveniences ; and the rapid settlements in our vast and rich forest region require the construction of many school-houses. The returns from the superintendents show that 239 such houses were erected the past year in the counties, and at the aggregate cost of \$153,985.46. The knowledge of school sanitation which the State Board of Health has imparted, in the past three years, to the school boards and teachers, has prepared the way in many localities for the acceptance of the fundamental principles which should govern in the selection of the sites and the preferable shapes of the school buildings and of their arrangements for lighting, warming, and ventilation.

Observations on the Present Condition of the Public Schools.

I wish to suggest, particularly to the county superintendents, that the present time is a fitting one for them to exercise their authority in this direction. They can counsel with their school boards on this subject, address the people by printed circulars or by lectures in the school-districts, interest the carpenters and builders in the planning and erection of elegant and commodious school-houses, and induce the teachers and pupils to create a sentiment in favor of properly inclosing and beautifying the school yards.

VIII. THE GRADING SYSTEM FOR THE COUNTRY SCHOOLS.

This system inaugurated in the State consists of a course of study which embraces the elementary branches; of the classification of the school into three grades, with regular steps in each grade; of the adoption of rules to govern in the promotion and graduation of pupils; and of the use of a simple and yet complete method of school records. These are the essential features, no one of which can be separated from the others.

The most active and aggressive labor has been performed the past year in the introduction of this system. My circular on the subject, first issued last year, has been carefully revised; and another edition of 5,000 copies of it, printed by the State, has been distributed among the teachers not previously supplied. Meetings of county superintendents have been held to discuss the means of instructing the teachers and enlisting school boards in the adoption of the scheme. The course of study for the institutes and the teaching given therein have been based on the classification which it proposes. Many public addresses have been presented in explanation of its constituent parts and its advantages. Able reports of the progress of the gradation of the country schools have been published in the papers of the State, and especially in the Wisconsin Journal of Education. A large amount of correspondence has been conducted in informing district officers, teachers, and pupils, what methods should be employed in the prosecution of the work. County superintendents have rendered the most gratifying service, in the use of circulars,

Observations on the Present Condition of the Public Schools.

in the visitation of schools, in the instruction of their teachers in various ways, in the examination of pupil for graduation, and in interviews with leading citizens. Many associations of teachers have taken up the subject as a favorite one for discussion. Over seven hundred copies of Lunn's School Register, indispensable to the successful operation of this plan, have been sold to district clerks. It is believed that one-fifth of the ungraded schools of this State are now working under the principles and processes laid down in the circulars on this grading system. This is an achievement beyond my most ardent expectations.

The experience of the past year in conducting this movement, in watching the hinderances which it has to meet, and in noting the successes which it has gained, furnishes a few suggestions as to the course to be pursued in the immediate future. They are as follows:

1. A more general and healthy enthusiasm in the work should be stimulated and maintained. Like all other great enterprises, it must be supported by strong convictions and earnest feelings. Its chief objects and methods should receive the hearty support of all our teachers and school officers. The valuable results which it can secure for our schools, not the difficulties which it encounters, should command our principal attention.

2. There should be a firm adherence to the main plans and arrangements already adopted for the introduction of the system. Without doubt, they are founded on the correct and permanent principles of gradation in the public schools. They have been approved by nearly all the prominent educators of the State after mature reflection. Sure failure will follow any vacillation in the establishment of this genuine reform.

3. No spirit of impatience and undue haste should be exhibited in securing the adoption of this grading scheme. Slow progress in the work must be expected. If we succeed in the next ten years in incorporating its principal features into all or nearly all of the country schools, we must be fully satisfied. We have

Observations on the Present Condition of the Public Schools.

to contend with regulations which have been in force at least fifty years in the school rooms of this country, and with the established practices of school-districts in which reside our most conservative population. They are the least inclined to be influenced by new ideas, and to labor under unfamiliar methods. The prevailing system of teaching in our ungraded schools tends universally to produce an unbalanced education in the minds of the pupils, and hence a one-sidedness in their opinions when they reach mature years; and this result presents the most serious difficulty which we have to meet. It will require years to overcome this effectually.

4. At present, the establishment of this grading system must depend very largely upon the efforts of the teachers in the country schools. They are in close contact with the district boards, the parents, and the pupils; and they can most easily influence these to accept its features. They best realize the benefits of the new classification which it provides for the schools. With them the school boards are obliged by law to consult in reference to the instruction and government of the pupils. They have, in several important points, conjoint authority with these boards in exercising supervision over the formation of classes, the arrangement of subjects to be studied in school, and the regulations for promotion between the different grades. Practically these points and others connected with them are almost always left to the discretion of the teachers in the country schools. Their efforts in persuading the children to accept this system are usually regarded with favor by their district boards, even when the latter have granted them no permission in this direction. This fact can be accounted for on the ground that there is a conviction, sometimes quite indistinct, among these boards and the other people of the districts, that the position of a teacher alone confers upon him the power to use and enforce measures which really improve the work of the school room.

WILLIAM C. WHITFORD,
State Superintendent.

DOCUMENTS

ACCOMPANYING THE

ANNUAL REPORT OF STATE SUPERINTENDENT.

1. Circular of the State Superintendent on plans and specifications of school-houses for the country districts, villages, and smaller cities of Wisconsin.
2. Special reports of County and City Superintendents.
3. Extracts from the annual reports of the State Educational Institutions — University, Normal Schools, Charitable, and Reformatory.
4. Reports of the visiting committees of the State Normal Schools.
5. Questions for the examination of teachers for State Certificates.
6. Statistical tables.

PLANS AND SPECIFICATIONS OF SCHOOL-HOUSES
FOR THE
Country Districts, Villages, and Smaller Cities of Wisconsin.

OFFICE OF STATE SUPERINTENDENT,
MADISON, WIS., October 14, 1881.

To the School-District Boards:

In my last annual report, I remarked that "the State should speedily initiate measures for stimulating and guiding school-districts in the erection of commodious school edifices,—those designed by well-informed and practical architects, and warmed and ventilated on the best approved plans." This suggestion has since been heartily commended by many persons in the State. On two occasions, our State Board of Health have urged, in their annual reports, that the State Superintendent should furnish, "without cost" to the district boards, "plans for school buildings, drawn with special reference to the health requirements of those who are to occupy them," and "adapted to the needs and pecuniary abilities of different localities."

The conviction has been steadily growing in my own mind, the past year, that it is the imperative duty of the State to procure and publish at once designs for school-houses, such as shall embrace the most convenient and sanitary arrangements for both teachers and pupils, and yet not too costly to be erected in any rural district, village, or small city. The pleasing appearance of these houses and their adaptation to the landscape should not be disregarded. I have been strengthened in this conviction by the numerous applications, made in the past few months at my office, for such designs and for minute instructions to guide in the erec-

Plans and Specifications of School-Houses.

tion of the buildings which shall meet the varying conditions of different places. Intelligent members of school-boards in the State have urgently requested me to prepare a circular on this subject. It has been discovered that but few copies of the standard works on school architecture are in the hands of our school officers, carpenters, and architects. In fact, many of these works are comparatively useless, as they were issued over fifteen years since; and they recommend arrangements for school rooms, which are now condemned, and omit others which are now considered almost indispensable. In some of those published more recently, the styles of the houses are so unusual in appearance and so elaborate in finish that they satisfy the architects who designed them, rather than the plain and substantial people who are expected to adopt them.

I wish also to present, in the most practical form, the many excellent suggestions furnished, in the past three years by our State Board of Health, on improving the hygienic conditions of school-houses and school grounds. These suggestions relate principally to the location, character, and area of the site; to its drainage; to the cellar spaces, the height, cubic capacity, and seating of the buildings; to the position of the rooms in respect to the admission of the sunshine; to the entries, stairs, and wardrobes; to the heating, ventilation, and lighting of all apartments; to the shape and arrangements of the study and recitation rooms; and to the playgrounds and outhouses. The diligent effort has been made to incorporate, in the observations and plans presented in this circular, the principles of sanitation which, I understand, are recognized by our State Board and defined by other authorities on this subject.

This work has been performed in the belief that the school municipalities of the State which will soon erect new school buildings, will gladly accept many of the designs and the instructions herein furnished. I have had also another object in view, and that is to suggest the ideas and methods by which the desired

Plans and Specifications of School-Houses.

improvements may be introduced into many existing school-houses, some of them planned and constructed on old, rejected, and wretched models. I invite the school boards having such houses under their supervision, to examine carefully the various directions given under the points discussed, and particularly the many superior arrangements in the buildings, illustrated in the engravings. It is believed that they will find it practicable to modify many of their houses, without great outlay of money, in accordance with these directions and arrangements.

The architects who have aided me, and whose names appear with the designs and specifications hereafter furnished, have had large experience in planning some of the best school buildings in the State. They have specially studied the latest changes in the heating, ventilation, lighting, and construction of such buildings. They have cheerfully accepted and wrought into their plans the suggestions which I have presented from time to time. They have contributed the results of their most careful investigation and ripest skill, such as appear in the beautiful elevations and perspectives of the buildings, and in the excellent internal conveniences of the same. In a most generous spirit, they all have donated the plans, most of them the drawings, and a portion of them the stereotype plates, for this circular. In doing this they have been actuated by the desire to assist the people of the State in the selection of the best approved and still not expensive styles of school architecture. In addition to these gifts, they have supplied, for nearly all the designs, the full specifications for the erection of the buildings; and for a portion of them, the approximate estimates of the amount of materials required in their erection. These specifications and estimates can be consulted by the school boards in determining the cost of the construction, and in forming their contracts with the builders.

The limits of this circular will permit, in the discussion of the different topics, only brief hints or directions, with scarcely any reasons assigned for them.

Location of the Site.

I. LOCATION OF THE SITE.**1. As to convenience.**

(1) It should be as near central in the district, village, or small city as circumstances will permit. This should be the case for the population, prospective as well as present, if not always for the territory.

(2) It should be easily accessible by streets or well-traveled roads; and by bridges, if streams of water travers the district. The position of such barriers as marshes, lakes, and ranges of hills, should be considered.

(3) It should be selected with the view of locating, if possible the building with the front facing the east or the south. The direction should be determined by the plan of the building. This arrangement secures the greatest number of the best conditions for convenience and comfort in the school rooms.

2. As to the exposure of the children to noise, danger, and demoralizing influences.

(1) The site should not be in the vicinity of any mill or factory, blacksmith or wagon shop, any railroad or railroad depot, nor any store, hotel, or saloon.

(2) The dangers attending the location of a school-house near the banks of a river, lake, or mill pond, are well known.

3. As to health requirements.

(1) The site should be remote from any low or marshy ground, stagnant water, cess-pools, and openings of sewers.

(2) It should not be near any cheese factory, burying ground, butcher shop, or meat market.

(3) It should be condemned, if its soil is naturally damp and cannot be thoroughly and permanently drained; and if it allows, from the nature of the surface, pools of water to collect upon or near it, or any part of it to be overflowed by the heavy rains.

(4) The grounds are usually objectionable when their depressions must be artificially filled to provide a place for the house

Location of the Site.

and level spots for the children's yards. A site whose soil is composed in whole or in part of sawdust should never be chosen.

(5) A gravel or sandy bed beneath the surface soil is preferred to heavy clay or compact muck, as it facilitates the draining of the rain water and the circulation of the ground air.

(6) Under no circumstances should moisture be permitted to gather under the school-house, thus producing a damp subsoil. This moisture not only causes the sills and the floor connected with them to decay rapidly, but it permeates the building and is very injurious to the health of the school. No contrivances for the ventilation of the cellar and school rooms can offset this defect. When required, deep drains should be dug on the outside of the foundations of the house, and the water inclined to collect under the house should be effectually conducted away by them.

(7) The school-house should never be built in a dense woods, where the rays of the sun cannot enter the windows; nor fall, some time during the day, upon nearly every portion of the site. The grounds around the house should be so free from trees with thick branches that the air can readily circulate over the play-yards and through the windows of the house, when opened.

(8) It is very desirable that the surface of the ground should incline toward the south or the east; and never sharply toward the north, if it can possibly be avoided.

(9) The situation, while dry and well elevated, should be sheltered, if possible from the westerly winds, by higher grounds, or by trees growing in a forest or planted on or near the site.

4. As to attractiveness.

(1) The site should be free from stumps, rocks, dead trees, or other obstructions to the playground.

(2) A situation with beautiful natural scenery is desirable, but should be held secondary to a convenient and healthy one.

Area of the Site.

II. AREA OF THE SITE.

1. The State Department of Public Instruction has, for many years, insisted that "the site selected should contain at least one acre." Under the provisions of law, this amount of land can be taken for a school-house site without the consent of the owner. With his consent, more than this can be obtained.

2. Never less than a half acre should be accepted by a country district, and never less than two lots by a village or small city.

3. With an acre of land, the preferable form for the site is rectangular, having sixteen rods front and ten rods deep; and with a half acre, eight rods front and ten rods deep.

4. Prof. T. W. Chittenden says, in the reports of the State Board of Health, that the playground should have an area of not less than forty superficial feet for each pupil." This requirement does not apply to the country districts, where land can be more readily and cheaply purchased; but to some villages and cities, where it is comparatively difficult to secure the necessary area. Where this rule needs to be observed, it directs that the school yard, not occupied by the buildings and walks, shall embrace not less than fifteen square rods for each one hundred pupils.

5. The boys and girls should not be dismissed at the same time for the forenoon and afternoon recesses, unless they have separate play-yards, and an outhouse connected with each yard. An area sufficient for all these furnishes the opportunity for saving at least twenty to thirty minutes a day for the recitations of the school.

6. The idea which should govern in this case aims to secure space, not for mere amusements, but for proper physical exercises by both sexes. No children in any school should be compelled to go into the highway or on private grounds for their plays or outdoor recreation.

7. In this State, two-thirds of the school-house sites in the

Plan of the School Grounds.

counties and outside of the independent cities, contain each less than one acre. The past neglect in not procuring more land for very many of these sites, should be speedily remedied.

III. PLAN OF THE SCHOOL GROUNDS.

1. Accepting the area and the form recommended for the site, it will next be necessary to locate the school-house, the out-buildings, the playgrounds, and the other appendages.

2. The house should be situated so far back from the front of the lot that the noise and dust of the street or road will not disturb the teacher and pupils. This distance should be not less than three rods.

3. When the site contains from a half to a whole acre in the form previously mentioned, the house should be placed near the center of it.

4. Generally in the rear of the school-house and sometimes attached to it, should be erected the wood-house.

5. The two privies for the sexes should be located, if convenient, so as not to be visible from the main street or highway. This can most often be effected when they are placed behind the wood-house and near the back end of the site.

6. These privies should always be separate, and situated so far apart, in connection with the playgrounds, that conversation in one cannot be heard in the other.

7. Two spaces should be assigned for the play-yards, one for the boys and the other for the girls. When a school maintains a primary department, a portion of the grounds should be set apart for its small children. It is very essential that all portions of these yards should be seen from the windows of the main school rooms.

8. From the middle of the rear end of the school-house or the wood-house, a tight board fence, six feet high, should run to the back end of the site, separating the two playgrounds from each other. When a common playground is needed, it can be selected in the front portion of the yard.

Plan of the School Grounds.

9. A high screen of boards or a thick evergreen hedge should be provided in front of each privy.

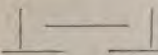
10. A planked or paved walk should extend from the gateway of the lot to the entrance doors of the school-house. It is desirable to build such walks, from these doors or ones in the rear of the house, to the privies. When running from the rear, these walks may be covered as a protection to the children in stormy or cold weather.

11. The playgrounds should never be paved with stone or brick, nor covered with plank or coarse gravel. The grass should be allowed to grow upon them as thickly as possible with their use by the children. Sometimes it is an advantage to spread a layer of fine sand upon them when the soil has been hardened in the frequent plays.

12. Unless wholesome water for drinking can be obtained from a supply near the school-house, a well should be dug on the school grounds. It should be located so as not to interfere with the play-yards, nor to receive the drainage from the privies, or any sewers or cess-pools in the neighborhood. It should be so constructed that no surface water can flow into it.

13. A neat and substantial fence should be built around the school lot. In some localities, one made of pickets or palings is preferred for the front and sometimes for the sides of the lot. Generally a board fence is more durable, and sufficiently pleasing in appearance. The lower portion of its posts, before buried in the ground, should be dipped in hot coal-tar, which aid in preserving the wood a much longer time. Four well-planed boards of pine, — the bottom one eight or ten inches wide, and the rest each six inches, should be nailed, at the proper spaces from each other, on the posts set in the ground; and then a pine board, — four or five inches wide, fastened flat to the top of the post, cut even with, or slightly inclined toward, the highest board on the side. The fence should be painted in an agreeable and lasting color. The gates should be strongly built, and so hung that they will shut themselves. An entrance way for the school, in the

Position of the School-House.

 style here illustrated, will be found very convenient. It effectually excludes cattle from the enclosure; while it permits children and even adults to pass through with no difficulty. The opening in the fence next to the street should be four feet wide, and the passage inside two feet.

IV. POSITION OF THE SCHOOL-HOUSE.

1. The most attractive side of a school building is generally the front. This side should be so placed that it will be fully visible from the street or from any other direction in which it will be seen to the best advantage.

2. Whenever practicable, the rear side of the school-house should face the west; or, in other words, the longer axis of the house should be east and west, with the front to the east or the south. This is particularly the case with one in a country district. This position furnishes the opportunity to warm readily the western end, the coldest in winter, by the stove or the heat from the furnace, placed at or near it. In ventilating the building, the westerly winds aid in driving the heated air from that side toward the front. The outside entrance doors will then be at the eastern or southern exposure, on the warmest and sunniest portion of the building. Always in school-hours the sun will not shine into the school room from the northern windows, which do not need any blinds or shades. The light from this direction is more steady and uniform. In the summer the sunshine comes, during the session of the school, more directly from the zenith; and will, therefore, enter the school room through the southern windows at an angle less inclined from the perpendicular. With blinds or shades at these windows, the painful effects of the intense light shining into the faces or on the books of the pupils, can be more easily avoided. By opening these windows in the hot days of the summer, and then those upon the northern side, the usual southerly breezes will pass through the school room, and greatly aid in cooling it. When the house is so

Ornamentation of the Site.

located that the principal windows are upon the eastern and western sides, during a portion of the forenoon and afternoon, the sunlight streams through them nearly or fully across the room, and into the eyes of the children.

3. It is very painful to see a school-house, sometimes three and four stories high, situated, in violation of good taste, on the bleak top of the highest bluff in the city or village. It is not in harmony with the surrounding scenery, is exposed to all the fierce blasts of the winter, receives the full heated rays of the sun in the summer, and its position compels the children to climb daily the steep ascent to it. It was built more as a conspicuous advertisement of the place, than as a conveniently located and well-planned house in which the children must be educated.

V. ORNAMENTATION OF THE SITE.

1. The chief ornament to the school grounds, besides the school-house, is well-seeded grass-plots in the front and at the sides of the house.

2. A few shrubs and evergreen trees should be planted along the walk leading to the entrance of the house; and, if there is room, along the walks to the privies. They could be set in other portions of the front yard, and in the outside angles of the house, whenever they exist. They should not be placed in the corners of the yard, as they tempt the children to hide behind them away from the sight of their teacher and playmates. The following beautiful shrubs are the most hardy in our climate: Purple and white lilacs, snow-ball, tartarean honeysuckle, syringa, spiræa in different varieties, and snowdrop. If a woody vine is desired, nothing surpasses for our use the Virginia creeper. All these can be obtained at the well-stocked nurseries in our State; and at prices of twenty-five cents for each shrub, and of fifteen to twenty cents when purchased in large quantities.

3. Deciduous as well as evergreen trees should be set on the school grounds, and usually close to the sidewalk in the street

Ornamentation of the Site.

passing the grounds. When the location demands the arrangement, a thick wind-break of these trees should be planted upon the western and northwestern portions of the lot. This will also add to the attractiveness of the site, particularly on our open prairies. Usually the trees, especially the evergreen, should be set in clumps; more often the deciduous, singly and in rows. In the nurseries of Wisconsin can be found the hardy varieties of trees suitable for the school site, and purchased at the same prices as the shrubs above mentioned. The following selection was made by Mr. J. C. Plumb, of Milton, Rock county, a nurseryman of large experience and widely known in the State. The list of the trees is given in the order of their merit: *The deciduous*,—(1) White Elm, (2) Sugar Maple, (3) Ash-leaved Maple, (4) Silver-leaved Maple, (5) Basswood, (6) Hackberry, (7) White Ash, (8) Green Ash, (9) White Birch, (10) Red Maple; *The evergreen*,—(1) Norway Spruce, (2) Balsam Fir, (3) White Pine, (4) American Arbor Vitæ.

The White Elm and the Sugar Maple grow comparatively slow, but they are long-lived and thrive in all places. They should have each thirty feet room, the spaces between them being occupied temporarily by the quick-growing maples. The Ash-leaved and Silver-leaved Maples and the Basswood are specially valuable for their rapid growth and thick shade. The White and the Green Ash and the White Birch are long-lived trees, very clean and hardy. The Hackberry rivals in beauty the Elm, but is obtained with difficulty. The Red Maple is one of our most beautiful native trees, but will not endure culture or rich ground; and it should be planted only in lean soils. The Bur Oak is the only one of the native oaks, which will pay to grow in our yards. It can be transplanted and is long-lived. In appearance it is a gem in any collection.

The evergreen trees are particularly valuable in breaking the dreary aspect of the landscape in our long winters. But they supply a variety of dense green color, very pleasing to the eye in the summer.

Height of School-Houses.

4. In planting these shrubs and trees in the spring, a hole four feet in diameter and at least a foot and a half deep, should be dug for each ; and then the soil at the bottom should be loosened by the spade, some of the dirt thrown out and thoroughly stirred, should be next shoveled into the hole, to make a bed for the roots of the plant, which should not be placed scarcely any deeper in the ground than where it has grown. Fine dirt should be placed carefully about its roots, and one or two pails of water poured upon them. The hole should be filled with the remaining dirt, well stamped down ; and then covered with a mulching of straw or chip or barn-yard manure.

5. No shrub or tree should be planted in the spaces assigned for the playgrounds ; and no tree, near the school building, where it will interfere with the light admitted through the windows.

6. The constant care for these shrubs and trees and their unrivaled beauty help to educate the children ; their shade is very grateful in the summer ; they cool the atmosphere in the hot days by condensing moisture upon their leaves at night, and by evaporating vast amounts of it through their leaves in the day-time ; they absorb or destroy the poisonous gases and the noxious exhalations often found about the school buildings ; and they produce a constant motion in the atmosphere, tending toward slight and healthful breezes.

VI. HEIGHT OF SCHOOL-HOUSES.

1. The sills and joists of the first floor, even in one-room houses, should be raised on a solid foundation, at least two feet above the surface of the ground, so the air can circulate freely under this floor.

2. A house with a single story, adapted to two departments and sometimes to three departments of the school, should be preferred to one with two stories. Though the original cost may be somewhat greater, the convenience, comfort, and economy of work for the school will repay many times the additional outlay. It saves the climbing of long stairways, all noise overhead, and

Height of School-Houses.

the exposure of the upper room to the severe action of the cold winds. It gives a more ready access of the pupils to the school rooms, and the opportunity for the principal of the school to have a more immediate oversight of the children in all departments.

3. The occasion is exceedingly rare when a three-story school building is really required in our villages and smaller cities. The small area of the school lot and the large number of children to be accommodated may compel the use of such a structure. But it should be avoided when possible. "To require the exertion necessary to raise" the weight of the body, by climbing the stairs, to a height of forty or fifty feet, "three or four times within six hours, is sheer barbarity in the case of any growing child, and is especially wrong in the case of girls just arriving at the age of puberty."

4. Two-story houses combine the greatest conveniences with the least cost, and provide the most attractive styles, for our schools with more than three rooms or departments. Such houses are more in harmony with the landscape generally found in the State. In a country with high hills or mountains, and with narrow valleys, tall houses are in keeping with the scenery; but in a level region, except in cities crowded with large buildings, they are out of place and distasteful. Add to this feature, our good-size prairies with their quite uniform surface, and these houses erected upon them are pretentious and forbidding in aspect.

5. The height of the houses should be sufficient to allow the ceiling in the smaller school rooms never to be less than twelve feet above the floor; and in the rooms of all sizes, very rarely more than fourteen feet.

6. The shape of the roof and the presence of a cupola on the roof can materially relieve the appearance of the building, when regarded as too low for its surroundings.

Economy in Construction.

VII. EXTERIOR ATTRACTIVENESS OF SCHOOL BUILDINGS.

1. The external appearance of a neat, elegant, and attractive school-house exerts a valuable educational influence upon the children.

2. The attention now given to the architectural beauty of our costly residences, tasteful churches, and substantial court-houses, should also be directed to secure the same pleasing effect in our school buildings. In this respect the cities are far in advance of the villages and rural districts. The elevations in the designs of school-houses, presented in this circular, are various in styles; but they show excellent proportions in the dimensions of these houses, fine symmetry in the arrangement of their different parts, and superior discernment in their suitable finish and embellishment.

3. It is an important prerequisite to an attractive edifice that it should have a solid appearance and be constructed of durable materials. The people of the State are peculiarly fortunate in having lumber, stone, and brick, all of the best quality for building both small and large structures.

4. The shades of certain colors on the different outside portions of a house contribute greatly to its picturesque beauty. Our sandstone and limestone, and our celebrated cream-colored brick furnish the most pleasant varieties of these shades. In painting these portions of the wood-work, there is an opportunity for the exercise of good judgment and cultivated taste, in order to give the proper effect.

VIII. ECONOMY IN CONSTRUCTION.

1. There is no waste or sacrifice of means in providing appropriate decorations for the outside and inside of a school building. They pay for their cost alone in the increased interest which the children feel in maintaining the neat and beautiful appearance of all its parts. The whole community appreciating its attractiveness, will demand greater care in using and preserving it. A repulsive

Economy in Construction.

looking school-house soon becomes dilapidated. It furnishes abundant excuses for the neglect of such a structure, often exhibited by the district board and teacher.

2. No gaudy or extravagant ornament is desired. Being offensive, it does not protect the building, but invites abuse. In the end still greater and more expensive are the faults of ill-proportioned, unsymmetrical, and incongruous school-houses, with a dead sameness on the surface of the exterior and interior walls, and with no evident unity of design in the arrangement of the details. The effort has been made not to present the styles of such edifices in this circular. They are too often seen in nearly all parts of the State, and need no reproduction here. Many of them must be rejected before long, as a reproach to communities with refined taste, and as a grievous loss in the previous expenditures of the school-districts.

3. The architects, whose designs I have accepted, have aimed, as a rule, to furnish neat and elegant models, and yet plain and substantial in appearance. Their solidness and durability will be seen in the plans and specifications. Nothing extraneous or for mere display has been admitted. It is believed that these will bear the closest scrutiny of the people, and that their enlightened judgment will accept the arrangements in these designs as economical, while thoroughly well adapted to the ends necessarily in view.

4. In the construction of the school-houses, fair prices should be paid for the labor. No contractor should be tempted or compelled to slight the work on the foundation or superstructure, in order to save himself from pecuniary loss. His haste and neglect will be visibly evident in a few years; and the cost of repairs will, many times, overbalance the additional expense of the most careful building at first. The strength and quality of all materials used should be constantly tested. A crumbling pier or a cracked beam may cause vast mischief in a large school edifice. Air-slacked lime may occasion much annoyance in the loose and uncemented plastering.

Economy in Construction.

5. In the country districts, wooden houses are usually erected. They are cheaper, and the lumber is more readily obtained. They are comparatively small in size, and admit of but few embellishments. But they must strictly conform to the laws of correct proportion in their dimensions, and of proper disposition of their doors, windows, and other details. In our climate it is economy in heating school rooms to make the exterior walls as impervious to the winds as possible. On the outside of the studding of the balloon frames which are generally erected, should first be nailed the sheeting made of matched fence boards; and then over this should be tightly fastened roof felting or tarred paper. The increase in the cost of the latter is very slight.

6. Brick are manufactured at such moderate prices in this State, and have usually such beautiful cream color, that they are used extensively, in our cities and villages and sometimes in our rural districts, in the erection of school buildings. They possess the quality of great durability. Either the outside walls are constructed of them solid, or the wooden frame, after sheeting, is veneered with them in a single thickness. The latter method is somewhat cheaper, renders the building drier, preserves a more uniform temperature in the rooms, and has all the massive appearance of a regular brick structure. For a one-room school-house, the additional cost is \$200.00 on an average, as between this method and the covering with pine clapboards. The expense of painting this portion is saved now and hereafter.

7. An important principle should be observed in providing for the construction of our school-houses, viz.: That this work is not performed to supply educational facilities for the present generation of children merely, but for several generations in the immediate future. It is economical to anticipate the needs of the latter, and to build so that the best known conditions of such houses for their comfort and health will be enjoyed by them as well as by the pupils of to-day.

Entries, Wardrobes, and Stairways.

IX. ENTRIES, WARDROBES, AND STAIRWAYS.

1. Very generally these are situated in the front portion of the school-house, and in close connection with each other. Their uses determine this arrangement. In our one-story houses, the space occupied by the stairways is usually saved or assigned to the wardrobes.

2. When the architectural features of the smaller houses will conveniently permit, separate outside doors for the two sexes should be provided. This should invariably be the case in the buildings with more than three or four rooms. It seems to prevent crowding and disorder of the pupils before reaching or on leaving the school rooms, and removes the temptation for boys and girls to remain in the entries, engaged in conversation.

3. Any doors leading from the entries into the school rooms should not open immediately opposite the outside doors, but at a considerable angle to them. Direct draughts of cold air are prevented, in great part, from passing through these doors into the school rooms; and the warm air of the latter, from escaping through the same openings.

4. It is a better arrangement for the children to gain access to the school rooms through wardrobes which are attached to the entries or vestibules. In the country school-houses the doors which lead directly from the entries into the school rooms would be dispensed with in this case.

5. The stairs required for the two-story houses should be separate for the sexes, not less than four feet in width, and for large schools six feet. Each step should be five or six inches in height,—never exceeding seven inches; and should have the minimum tread of ten inches, and even twelve when convenient. When long stairways are used, it is desirable that they should each be broken midway by a broad landing. Under these provisions, there is less danger of the pupils falling on the stairs, or of collision with each other, as they pass up and down them. They can also ascend the stairways with less weariness.

Shape and Size of School Rooms.

6. The entries, when converted into cloak rooms, and the wardrobes should always be furnished with hard-wood pegs or wrought iron clothes-hooks in double rows, sufficient in number to allot one to each pupil. The lower row is designed for the younger children, and should be set not over four feet above the floor. Small pigeon-holes, in which overshoes can be placed, should be constructed in the lower part of the entries or wardrobes. When needed, to each of the latter should be added a cupboard for storing away the lunch pails. This can be securely fastened, and the key kept by the teacher or a trusty boy or girl. Also in each should be supplied benches or shelves for the water pail, drinking cup, and wash basin; a wooden pin or roller for the towel; and a rack with a water-tight box at the bottom, to receive the umbrellas.

Always the light and, if possible, the sunshine should be admitted through windows into the rooms where the children's clothes are deposited. These rooms are usually ventilated by the opening of the doors connected with the entries or the school rooms. For the same purpose, moveable transom windows over the doorways to the entries or vestibules, are very useful. It would aid in preserving the health of the pupils, if a current of hot air from the furnace could be directed among the clothes, to dry them when damp, and to warm them at all times in cold weather just before they are put on to be worn in the outside atmosphere. If the wardrobes could be thus heated, the pupils would experience less uncomfortable feelings in passing outdoors from well-warmed school rooms through these wardrobes.

X. SHAPE AND SIZE OF SCHOOL ROOMS.

1. They should be oblong in shape, with the length one fourth to one-third greater than the width. The teacher stationed at his desk, placed at the middle of one end of a school room in this form, can observe, in an instant, a larger number of pupils in their seats; and with less turning of his body, he can address them.

Shape and Size of School Rooms.

On the other hand, the pupils can look at him with less effort, and more readily listen to his words. Besides, not so large an area is taken up by the teacher's platform, the unoccupied spaces at his sides, and the recitation benches in front. Any writing on the blackboard behind the teacher's desk, and directly in front of the pupils, can be seen more distinctly by them while studying or at recitation, as the light reflected from the blackboard enters their eyes at a greater angle and makes a more vivid impression. A better distribution of the light is generally secured at the side or end of the room opposite to the windows.

There are some advantages in having the length of the school room twice its breadth. These relate principally to the more adequate supply of light from a single direction at the side, and to the more complete view which the teacher, at his seat on the platform, can take of the room at a single glance. But these advantages are particularly outweighed by the inconveniences which are caused by the narrow space for the recitation of classes, usually found in such a case before the teacher's platform; and by the inability of the pupils, in the rear portion of the room, to hear clearly the voice of the teacher, unless he speaks quite loudly.

2. The suitable height of the school rooms has been mentioned elsewhere. This is determined by the agreeable effect of the correct proportion between the three dimensions of a room, by its acoustic properties, and by the laws of ventilation as applied to it.

3. The amount of the floor space should be regulated primarily by the whole number of pupils to be accommodated in the school room. In planning for this amount, there should be considered the area required for their desks, the recitation seats, the aisles, the stove or heater when used in the room, and the teacher's platform.

The length of the double desks, sold by the manufacturers of school furniture, is 36 inches for the smaller children, and 42 inches for the larger; and the length of the single desks, 18 inches for the smaller, and 24 inches for the larger. The width of the space

Shape and Size of School Rooms.

occupied by each kind of desks with their seats, when arranged in rows in the school room, ranges from 25 inches for the primary pupils to 30 inches for those in the grammar and high school grades. The aisles between the double desks should be usually 2 feet wide; and between the single desks, $1\frac{1}{2}$ feet wide. The two side aisles should, in either case, be each $3\frac{1}{2}$ feet wide; the front aisle in advance of the recitation seats, at least 3 feet; and the aisle in the rear of all the desks, 4 feet. The stove or heater should generally be set in a corner, where it will take the least room, and not obstruct the movements of the school. The platform of the teacher should have the depth of five feet at least, and its length may be 8 or 10 feet.

A room with double desks placed in three rows, six in a row, will accommodate thirty-six pupils; and allowing the space of thirty inches for the width of each desk with its seat, it should be $21\frac{1}{2}$ by 27 feet in area. One with seven desks in a row will accommodate forty-two pupils, and should be $21\frac{1}{2}$ by $29\frac{1}{2}$ feet. When these desks are in four rows, seven in a row, seating is provided for fifty-six pupils, and the area of the room should be 27 by $29\frac{1}{2}$ feet; and eight in a row, for sixty-four pupils, the room being 27 by 32 feet.

With single desks in five rows, six in a row, the room should be 23 by 27 feet in area, to provide for thirty pupils; and eight in a row, it should be 23 by 32 feet, to provide for forty pupils. With these desks in six rows, eight in a row, the room should be $26\frac{1}{2}$ by 32 feet, to provide for forty-eight pupils; and ten in a row, it should be $26\frac{1}{2}$ by 37 feet, to provide for sixty pupils.

But in arranging for the floor space, more special reference should be made to the number of square feet of this space, which our best sanitary authorities have allotted to each pupil. Some of them require nine feet as the minimum; others, twelve feet. Our State Board of Health prescribe the following rules:—
“Rooms for study must have a floor space of at least fifteen square feet per capita for primary scholars, and twenty square feet

Some Arrangements for School Rooms.

per capita for those over ten years of age." "Rooms for recitation which are not in constant use need have only three-fourths of this amount of floor surface." Where the school room is 12 or 14 feet high, each pupil, with nine square feet of this surface, will be supplied with 108 or 126 cubic feet of air; and with twelve square feet, with 144 or 168 cubic feet. In the rooms of the heights above given, the schools each of thirty or forty-eight pupils, divided into the proportionate number of primaries and those over ten years of age, should, on the basis adopted by the State Board, be provided with 220 or 256.6 cubic feet for each pupil. The area of a room for a school of thirty such pupils, should be 21 by 26 feet; and for one of forty-eight pupils, 26 by 34 feet. The rooms here mentioned respectively conform very nearly in size to those which are described in the previous paragraph, as furnished with single desks for thirty and forty-eight pupils. It may be inquired whether the amount of the floor space for each pupil, fixed by the State Board, could not be reduced to twelve and fifteen square feet, where there is a ready passage of fresh air through the room in thorough ventilation.

XI. SOME ARRANGEMENTS FOR SCHOOL ROOMS.

1. As to their acoustic properties.

(1) The form of the exact square is rejected. As already stated, the position of the teacher's desk in a room with the oblong figure should be at one end, in order that both the teacher and pupils may hear each other more easily. The difficulties usually attending a room in the exact square are greatly increased, where the teacher is stationed at the side of one in the oblong shape.

(2) The height of a room affects very perceptibly the distinct hearing of the voice. Echoes and confused sounds are liable to be produced, if the ceiling is above thirteen feet from the floor whose surface contains less than 1,600 square feet.

(3) "Painted walls also promote echo and noisiness," even in rooms not thirteen feet high.

Some Arrangements for School Rooms.

(4) Large maps or cloth screens should be hung against blank walls whose echoes annoy the school.

2. As to the color of plastering and wood-work.

(1) The surface of the plastering on the walls should be tinged with a light gray color, as the most agreeable to the eye. A modification of this color by the slight mixture of blue, is recommended by some authorities.

(2) The ceiling should always be white, so as better to reflect the light upon the blackboard and desks.

(3) The colors of our native soft and hard woods are specially adapted to produce pleasing effect in our school rooms. These colors improve, as they become darker with exposure to the air. There is no need of painting the ordinary lumber used in the floors and the finish of these rooms. Coatings of oil and varnish will suffice, as they help to preserve the wood and to bring out its grain.

3. As to wainscoting.

(1) This adds greatly to the attractive appearance of a school room, and serves to protect the walls, saving many repairs in time.

(2) Either plain or paneled, it should be constructed on all sides of the room. Under no circumstances should it be omitted beneath the blackboards. It should also be carried around the walls of the entries and corridors, and along the stairways of the school building.

4. As to the windows.

(1) The sills of these should be set at least three and a half or four feet above the floor, and their heads reach to within one foot or six inches of the ceiling.

(2) "Plain square sashes are better than those having arched or Gothic tops."

(3) Both sashes of each window should be hung with cord and weights, and so fitted that they can easily be raised or lowered.

(4) Blinds and shades should be used only when necessary to exclude the rays of the sun, and when the light admitted becomes

Some Arrangements for School Rooms.

too intense. Outside blinds detract from the elegant appearance of buildings, are liable to be injured, difficult to be adjusted, and interfere with the grouping of several windows together on the sides or ends of school rooms. Inside shutters are more easily managed, and the lights more perfectly regulated. Curtains of opaque shading are preferred for their cheapness, as they can be purchased of dealers in our villages and cities for seventy-five cents to one dollar a piece, including their fixtures. They are comparatively out of the way, and can readily be handled. With fair usage, they will last for several years. In hanging them, it is advisable to place the roller which holds each curtain five or six inches from the top of the window. The sunshine will not, usually in school-hours, stream through the open space over the curtain onto the desks; and when the upper sash is lowered, the air can pass unobstructed through this opening into the room.

5. As to rooms or closets for teachers and apparatus.

(1) A room is always provided for the teachers in large and well-arranged school buildings, and of sufficient size to accommodate them as they retire for rest or consultation.

(2) In the smaller buildings, like those for the country schools, a closet in which the teacher can hang his garments and keep his books should be constructed in the partition near his platform, or in one corner of the room in which his pupils study. A sample of the latter arrangement is shown in this circular in one of the designs for such school-houses.

(3) Rooms or closets of similar size should be made for the apparatus of the school.

6. As to the teacher's platform.

(1) It is the rule to furnish one for each room occupied for study or recitation. Still some teachers prefer not to use it, and in small rooms it should be dispensed with as in the way.

(2) Its height should usually be only a single step. The school room has very generally too little floor surface for one that is higher. Its usual length and breadth are described elsewhere.

Some Arrangements for School Rooms.

(3) Rarely should there be a departure from the practice of locating the platform in front of the pupils seated at their desks.

(4) All things considered, the most suitable position for the platform is near the door, or between the doors, through which the scholars are admitted to the room. This position is most often chosen. The teacher is where he can best oversee the entrance and departure of the pupils, have supervision of the entries and wardrobes, and attend to all calls of visitors. Behind him is a bare wall for the blackboard; and this wall having no windows, the pupils can sit facing the teacher, with no light shining directly into their eyes.

7. As to the blackboards.

(1) As before stated, one should be manufactured on the wall behind the teacher, and, of course, in front of the pupils seated for study and recitation. Suitable places for additional blackboards can frequently be found on the walls in other parts of the room.

(2) No blackboard should ever be constructed on the pier between two windows. The glare of the light from the windows, falling directly into the eye as it looks at the board, is very injurious to the eye. Besides, the marks on the board in this position are not readily seen, and the eye is strained in discerning them. Nor should a blackboard be bounded at one end by the window casing; so that in seeing any crayon-work on that end of the board, the eye is compelled to embrace in the view a portion of the window with its light, whether intense or dull.

(3) The best arrangement is for the light, coming from the windows, to strike perpendicularly or at a large angle — not less than 45° — upon the blackboard, and then to be reflected to the eyes of the pupils at their seats.

(4) In a school room where there are primary children, the bottom of the board should be placed within two feet of the floor or platform on which they can stand. When there are larger pupils for the grammar grade in the same room, the top of the board

Some Arrangements for School Rooms.

should extend six and a half to seven feet above the floor or platform. It is a good rule to require, if possible, that the board should be at least four feet in width for all uses.

(5) Under the blackboard, the top of the wainscoting should be finished with a molding three inches wide, and shaped on the upper side into a trough an inch deep. This holds the crayons and erasers, and catches the dust from the board.

(6) In making a blackboard on the wall, both the brown mortar and the hard finish used in plastering should contain a large percentage—nearly fifty—of plaster of Paris. A hard and compact base is thus provided. On the perfectly smooth, dry, and even surface, should be applied the liquid slating, with a sufficient number of coatings to form a solid, uniform, and durable layer of the material. Each coating should be carefully rubbed by fine sand-paper,—except the last, which should be polished smooth by using coarse brown paper, covered with this slating thoroughly dried.

Generally, the liquid in excellent condition and of different colors can be procured most easily from the dealers in school apparatus. The directions for applying it to the board accompany the cans in which it is sold. When desirable to manufacture slating, the following will prove a useful substitute:—Dissolve gum shellac in very strong alcohol, 95 per cent. at least; and add fine flour of emery, with lampblack, until the mixture has the consistency of thin paint. This gives a black tint to the board, on which the crayon marks are most distinctly perceived. But green, brownish, and drab colors are considered more pleasant to the eye; and should, therefore, be preferred. Of these the green is most frequently selected. In making slating of this color, dark and dry chrome green takes the place of lampblack in the composition above given. About twelve hours are required for the shellac to dissolve in the alcohol. The proportion of these two ingredients is four ounces of the former to one quart of the latter. Sufficient quantity of the chrome green must be used to give the

Some Arrangements for School Rooms.

desired color. When ready to be applied to the board, the liquid must be kept constantly stirred, and put on with a wide, flat varnish brush. In doing this, begin at one end of the board, drawing the brush rapidly from the top to the bottom of it without stopping. Immediately repeat this movement over the next space, and so on until the other end of the board is reached. After sand-papering this coating as before directed, perform this operation the second time, and even the third, until the proper thickness of the slating has been laid upon the board.

(7) Dustless crayons are quite generally used by the teachers in our larger schools. They wear longer particularly on rough boards, and create less dust, so annoying to both teacher and pupils. Care must be exercised not to obtain those which will grease the board.

8. As to the desks and seats.

(1) It is very common, on the erection of new school buildings, to purchase the desks and seats of the school furniture houses. Usually they can be procured nearly as cheaply and much better adapted to their use, than those made by inexperienced carpenters.

(2) While they differ in style, they are uniformly fitted to the various heights of pupils. This is an important item, as respects both the seats and desks. The front edges of the seats which accommodate primary pupils are commonly $10\frac{3}{4}$ or 12 inches high; and the sides of the desks next to the pupils, $20\frac{1}{2}$ or $22\frac{1}{2}$ inches. The same edges of the seats for intermediate, grammar, and high school scholars, are respectively 13, 14, and 15 inches high; and the same sides of the desks, $24\frac{3}{4}$, $26\frac{3}{4}$, and $28\frac{3}{4}$ inches. A foot-rest of the proper height under each desk is a great convenience. In obtaining or making this furniture, these rules should be followed: — (a) To enable the pupil to set his feet squarely on the floor, the vertical distance of the front edge of the seat from the floor should be equal to the length of his leg, from the knee to the sole of the foot; and (b) this distance of the side of the desk

Lighting.

next to the pupil above the front edge of the seat, should be one-sixth of his height, in order that the under part of his arm may rest, without any straining of the muscles, on the top of the desk. The pitch of the seat backwards should be an inch and a quarter; and the rise of the desk-top forward, an inch and a half.

(3) The inner edge of the desk should extend an inch or an inch and a half over the front edge of the seat next in the rear.

(4) Double desks and seats are more economical and occupy less space, for a given number of pupils; and they are, therefore, more generally used than the single ones. For a school of forty or forty-eight pupils — as many as should be in charge of one teacher — these desks can be best arranged in four rows. Taking into account the aisles, six rows of single desks will fill nearly the same area. A teacher sustains a loss of power, when he is required to supervise the deportment and work of children facing the platform, and seated at double or single desks in a greater number of rows.

(5) Where there is space in the school room, seats or benches of the ordinary length should be furnished for the classes at their recitations. These should have the same heights as the seats attached to the different desks, and be provided with backs of the proper shape. Many schools use, for recitation purposes, the seats belonging to the front desks in the rows. These are often too low for the larger scholars.

XII. LIGHTING.

1. In a previous article, I have described the proper position of a school-house in reference to the admission of the northern and southern light, and the exclusion of the eastern and western rays of the sun when near the horizon. It is indispensable that the direct light of the sun should enter, some portion of the day, into all the study and recitation rooms; and whenever possible, into the vestibules, corridors, and wardrobes. The effect is not only cheerful and stimulating, but healthful in the highest degree.

Lighting.

The air in the room is "set in motion," and the exhalations which it receives from the bodies and clothing of the pupils are decomposed. This purifying power of the sun's rays is greatest in the middle of the day, and should be used when circumstances will permit. In securing this arrangement, the windows in the smaller school buildings are easily placed so as to admit the sunlight at noon, and certainly during some hours just before or after that time. But a serious difficulty is occasionally met in locating large buildings, so that the sun can be seen, for some time each day, from all the principal rooms. This point should never be overlooked in such cases.

2. I have also given the required height of the windows above the floors in the school rooms. This height enables a large share of the light to fall at or near the angle of 45° upon the desks of the pupils,—a very desirable result; and none of it to come exactly in a horizontal direction, as the bottoms of the windows are above the pupils' heads when seated. The morning or evening sunshine can pass through the tops of the windows, and bathe the ceiling and portions of the walls. As the farthest desk from the windows should not be set at a distance over one and a half times their height, this plan provides for the construction of a wider and sometimes a longer room, and accommodates a greater number of pupils.

3. The surface of all the windows in the school room should equal at least one-sixth of the floor area; and when practicable, as much as one-fourth of it. Only on this standard can a sufficient amount of light be supplied to the pupils. When too intense at times, it can be modified, as before stated, by the use of the blinds or shades.

4. The clearest and most comfortable light is admitted through several windows grouped together and separated from each other by mullions or very slender piers. The light is affected by broad shadows and is not so uniformly distributed throughout the room, when it comes from windows placed some feet apart. Several of

Ventilation.

the designs of school-houses in this circular present the feature here recommended.

5. It is very desirable that the light should enter the room on the left of the pupil. This arrangement, with that of supplying the light somewhat above him, fills the best conditions for illuminating the book or paper on his desk or in his hands. Rather than require the school to face the windows in any part of the room, it is far better to provide for the reception of the light wholly on the right side. In most of the country school buildings, the windows must be inserted on both the right and left of the pupils as seated, in order that the sunshine and the proper amount of light may be furnished for all portions of the school room. Cross-lights from windows at right angle to each other are an inconvenience, and often hurtful to the eyes. Still they must be allowed when one set of the windows is in the rear of the school, so that a proper amount of light and its just distribution may be secured for the desks farthest from the side windows of the room. The disadvantages of the pupils sitting in their own shadows and adapting the focus of their eyes to light of different intensities in consequence of its approach from the rear and one side, are exceeded by those which this arrangement prevents.

6. It should always be considered that it is the highest economy to supply a school with light in the requisite quantity. When it is either too dim or too intense, it not only causes languor and headache, and hence loss of ability to do hard work; but often severe and permanent injury to the eye-sight. The growing prevalence of near-sightedness among the pupils of our schools has justly excited quite general alarm.

XIII. VENTILATION.

1. The principal sources of the impurities in the atmosphere of the school room, are the dust from the floor and blackboards, the exhalations from the bodies and clothes of the teacher and pupils, and the poisonous gas emitted from their lungs in respiration.

Ventilation.

These cause the offensive air so well known in the ill-ventilated school-houses. Yet neither the sense of smell nor that of sight can be depended upon to detect usually the existence of these most deleterious substances in the school room. They are often too subtle to affect any of our external senses. Their presence should be determined by the conditions which produce them, and not by their pernicious effects upon the physical system of the members of the school.

2. Impure air, charged with the contaminations just mentioned, disturbs first the functions of respiration and circulation of the blood. Through the injury to these, the muscles are weakened, the nerves deranged in their action, and the brain stupefied. It is no wonder that children, who are far more easily affected by "atmospheric poisons" than adults, become weary, listless, and idle in our close and stifling school rooms. Or actuated to accomplish their tasks, they summon to their use extra energies of their bodies and minds, in order to overcome their dullness; and thus often close their tasks exhausted. It needs no argument to show that there is an immense loss of working force in a school under such conditions. The best authorities estimate that the pupil's ability to labor will, on an average, be doubled in a room furnished with the appliances for proper ventilation, when intelligently managed by the teacher.

In addition to these ill effects, foul air is a frightful source of weak or diseased eyes, caused by the rush of blood to the head, and of nervous headaches, dyspepsia, sleeplessness, and lung disorders.

3. The problem is to remove these impurities in the air so rapidly and completely from all parts of the school room that they will cause no harm. This can be done only by producing currents of air in the room and by finally withdrawing the whole body of the air; and supplying in its stead fresh air of the proper temperature. To avoid draughts of air, which when cold "slay like a sword," the velocity of the currents in contact with the bodies

Ventilation.

of the pupils should not exceed two feet per second. Eight cubic feet of pure air per minute constitute the very least amount allowed for each pupil by sanitarians, and sixteen cubic feet are urgently demanded by them for thorough distribution in the room.

4. Proper ventilation is readily secured without injury to the children, when the temperature of the air outside the school room does not fall below 63°, provided the size and position of the windows and doors will permit, when open, the required movement of this air through the room. In the country school-houses no difficulty will occur, as the windows are very generally placed on opposite sides; and in many larger houses the doors leading into the school rooms and the windows in the adjoining sides furnish the needed arrangements for ventilation. In hot weather the top sashes of the windows should be lowered so that the warm air in the upper portion of the room may be expelled, and the room somewhat cooled, by the action of the summer breezes which usually prevail at that season in this climate, blowing through the room. These results can effectually be reached when the windows extend quite near to the ceiling. When currents of air annoying to the school are formed by this method, these top sashes on the windward side should be closed; and the bottom ones raised, by placing under them boards three or four inches wide, and of the proper length to fill completely the apertures. The air will then find ingress into the room between the two sashes, and be drawn upward over the heads of the pupils. This contrivance could also be employed when it becomes necessary to reduce gradually the temperature of a room overheated by a stove or furnace in cold weather. The external air would, on entering, be immediately mingled with the warm air just beneath the ceiling, and then slowly fall toward the floor. Dr. J. T. Reeve, Secretary of the State Board of Health, recommends another device for preventing the rapid passage of the air through an open window. It consists in inserting, under the lower sash when raised,

Ventilation.

a large and closely fitting "frame covered with thin muslin without starch." Fine wire-gauze will answer the same purpose as the cloth. In the warmer months when our schools are in session, the winds very often move only at a gentle rate, and the fresh air can then be admitted with impunity through the spaces made by both raising and lowering the sashes of the windows.

5. Adequate ventilation is very difficult when the following conditions are united together, viz.: A slight difference between the temperature of the air outdoors and in the school room, no fire is required to keep the school warm and comfortable, and the external air is still — no wind stirring. These conditions are most frequently experienced in the months of May and September. When a school-house is provided with a suitable ventilating shaft, there will, even at such times, be a slight upward tendency of the air through it from the school room; but not sufficient to remove a large share of the impurities of the room. Occasionally it may be advisable to kindle a light fire in the stove or furnace, so as to aid this shaft in converting the sluggish movement of the air in the room into a more rapid one. General Morin, the best French authority on ventilation, advises the burning of gas in such a shaft. He says, "Chimneys may easily be made to serve as ventilators during the summer, or on special occasions, by placing in them an iron or copper pipe furnished with several gas-burners." He shows that in a smooth flue 11 inches square and 66 feet high, 1,900 cubic feet of air will be drawn upwards every hour to each cubic foot of gas burned, when only seven such feet of the gas are consumed an hour. But this arrangement is practically impossible except in our larger cities, where this material is used for illuminating purposes. But oil-lamps for the smaller flues, and oil (kerosene) stoves with two wicks for the larger could be substituted for the gas-burners in the school-houses of the villages and rural districts.

6. In all seasons of the year and under every system of ventilation, the doors and windows of every school room which is

Ventilation.

occupied should be opened widely at least twice each day, in order that the air may stream through the room into every part of it, and convey away the organic exhalations arising from the skin and lungs of the teacher and pupils, and adhering to the furniture, walls, and ceiling. Noon recess and the close of the day furnish the best opportunities for this cleansing, as the sudden cooling of the room in school hours might impair the health of the scholars. The atmosphere is vitiated more by this animal effluvia than by the carbonic acid generated in respiration. Of the two poisonous substances, the former is the more dangerous.

7. The Ruttan system of ventilation, is, without doubt, the most complete, practical, and successful one used in the school-houses of the State, particularly when the temperature of the weather is below 60 degrees. On the whole, it is the cheapest, considering the satisfactory work which it performs and the enduring qualities of the materials furnished. Prof. Chittenden alludes to it as promising the production of excellent effects. Gen. James Bintliff, a member of our State Board of Health, and whose articles on ventilation have attracted much attention, says that the system "is the design of the best process yet submitted." Pres. W. D. Parker, of the River Falls Normal School, in commending it as in operation in that institution, remarks that it gives "first-class results." It has also been introduced into other buildings belonging to our State Normal, high, graded, and district schools; and secures uniform approval.

In all the plans of school-houses submitted in this circular, the Ruttan principles and methods have been incorporated more or less fully by the architects. The reference is here made to these plans and their accompanying specifications, which clearly present the many details of the system as used.

The essential features of this mode of ventilation are the employment of heat in a stove or furnace in producing steady currents of air in a school room; the constant supply, at or near the bottom of the room, of large volumes of air moderately warmed

Ventilation.

in passing through the heating apparatus; the charging a room with this air so copiously that its pressure is from within outward at the doors and windows when closed, at the walls, and ceiling; the quick distribution of this air into every part of the room, causing a nearly equal temperature throughout, and yet so controlled that the inmates feel no perceptible currents in it; the rising of this air to the ceiling as it flows into the room, and then gradually falling in a diffused condition toward the different openings in or near the floor for its escape, thus sweeping out all foul and harmful gases and vapors; the withdrawal of this air, still preserving a portion of its heat, under the floor, which it warms comfortably for the feet of the children in the school; and the ample and upright ventilating flue, whose temperature is so raised by the smoke from the stove or furnace in escaping through an adjoining flue or a pipe erected in it, that it acts powerfully in exhausting, through an aperture at its base, the atmosphere of the room with which it is connected.

8. The present and very general method of using, in the colder months of the year, the common stove in the school room, is utterly inexcusable, inhuman, and injurious. Equally objectionable is the usual application of steam to iron coils or radiators. There are no inlets for the air, except the crevices around the doors and windows, or the cracks in the floor; and no outlets, except the wasteful and pernicious openings in the windows, made by moving the sashes up or down, or in the doors when ajar. The whole body of the air, contaminated by the breath and perspiration of the pupils, is revolved again and again about the hot stove, until the burnt, reeking, and sickening mass engenders stupefaction, dizziness, or other depression of the physical powers.

In very many of the old school-houses in the State, this disgraceful evil can be remedied at a most reasonable cost. In place of the small chimney in each house, a good-sized shaft with two flues could be built of brick, extending from the foundation to a point somewhat above the roof, as shown in the designs of the

Heating.

one-room buildings in this circular. The smaller flue, having the sectional area of 10 by 12 inches, is for the smoke; and the larger one, the area of 12 by 12 inches, is for the foul air. In the base of the latter should be made an opening at least as large as this area, either just above or below the floor, as indicated in these designs. Then under the common box stove or the ventilating heater should be constructed a larger aperture in the floor, in which is inserted a register, opened or closed by the means of its fans, and never less than 14 by 22 inches in size. Through this register the supply of pure air is drawn into the room by the stove or heater, from the cold air box immediately beneath, which is connected by an orifice with the atmosphere outside the building. This orifice should never be smaller than the opening under the stove or heater, and should be protected by a heavy wire-gauze.

XIV. HEATING.

1. The average temperature of the air in contact with the bodies of the pupils in a school room, should range from 65° to 70°. It should not, at any time, sink below 60° to 63°. This applies to the strata of the air at the floor, as well as around the heads of the pupils. In a carefully warmed and ventilated room, the mercury should not vary more than 5° in the thermometer when hung in any part of it. Under ordinary conditions, the Ruttan system of ventilation secures this result.

2. Heating by means of steam is comparatively expensive. The apparatus costs in general twice as much as the furnaces which supply warm air. Its parts are more liable to need repairing, and its operation is more uncertain, meeting as it always does with a greater number of hinderances. The air which it warms for the room is not lower in temperature than that usually passing through the heaters or furnaces devised for the Ruttan system. While not necessary, the arrangements for the ingress of fresh air and the exhaustion of the contaminated one, are generally very defective, or wanting altogether. A very considerable per-

Heating.

centage of the force derived from the heat applied to the water in generating steam, is lost in expanding and driving this steam along the iron pipes, or through the radiators. In other words, the heat of the burning fuel appears in part in mechanical action, and not in temperature.

3. The fire-place, whether old-fashioned or improved, is rarely used in our school-houses. While it furnishes good opportunities for ventilation, it wastes heat in a great degree. Not often over 14 per cent. of the heat is utilized in warming the air of a room; and under the very best possible arrangements, it never exceeds 35 per cent. The cold air from every aperture or crevice of the room is drawn along near the floor, around the bodies of the inmates, toward the fire, and mainly escapes up the chimney. It need not be said that this method is uncomfortable and a fruitful source of colds, nervous irritability, and influenza.

4. The ordinary stoves for wood or coal are procured for less money than the ventilating heaters or furnaces; but they consume more fuel for the warmth which is distributed in the room, and provide no adequate means for forcing the foul air out of it, and replenishing it with pure air thoroughly circulated in all its parts. They do not last as long as the heaters or furnaces when properly used; nor effect an entire exchange of the air of the room short of ten hours, even when connected with flues for admitting and discharging the air. More or less of the atmosphere in the corners remote from the stoves becomes stagnant and filthy in that time. The temperature at different heights in the room varies as much as 18° to 20° under the most favorable circumstances. The necessity and economy of providing wood for heating buildings in this State, induce very many school boards to entertain the opinion that the common stoves for wood must still be retained in the school rooms. Such is not the case, as this material can as profitably be burned in the heaters and furnaces.

It should be understood that the equalized temperature of a room is attained very largely through the convection or circula-

Heating.

tion of the air, and not by the direct radiation of the heat from the stoves. The apparatus which is made in direct conformity to this principle must be the most practical and successful one. Our stoves are designed chiefly for radiation, and fail in great part in this radical particular. Still they will be used in a majority of our school rooms. Wherever this is done, the directions given under ventilation for the construction of the upright shaft and the air flue under the stove, should be carefully observed.

5. I have already stated that the stove or heater should, when practicable, be placed in the coldest portion of the school room; and that the hot air, when supplied from a furnace, should be admitted through registers in the same portion. In our climate this is most usually in the northwestern corner of the room. From this point the fresh warm air can be most effectually supplied, forced into all parts of the room, and expelled through the ventilating shaft. The practice of locating the stove near the middle of one end of a school room and then running its pipe over the heads of the pupils and teacher in their seats, into the chimney at the other end, is simply barbarous and idiotic, and should be discontinued wherever it exists. Besides marring the appearance of the apartment, and often condensing the moisture in the smoke, which drips upon the desks and floor, this pipe radiates its heat upon the heads of those sitting under it, and thus often causing headaches and physical prostration. It also produces a strong upward current along the middle of the room, which constantly draws the impure air, chilled at the windows and outside walls, around the feet and bodies of the pupils. Many teachers will testify that under this arrangement the lower part of the room is always wretchedly cold and uncomfortable. Substantially the same objections must be presented against setting the stove in the center of the room. In both instances, it would be difficult to invent more successful contrivances for torturing the children.

6. The weight of the best authorities is now opposed to supplying the heated room with moisture arising from a water basin on

Heating.

a stove or in the air-chamber of a furnace. It withdraws a considerable portion of the heat which could be employed in warming the current of air. It is injurious to health and occasions frequently great physical discomfort. When the fresh air is moderately heated, its capacity to hold watery vapor is not so increased that it must be supplied by evaporation from the basin. Each hour from one to one and a half ounces of water are emitted, on an average, from the lungs and skin of a person. The air of a school room is in general sufficiently saturated by this process going on in the bodies of the pupils. A moist atmosphere thoroughly heated tends to the rapid destruction of the tissues in these organs. Besides, dry air is seldom insalubrious.

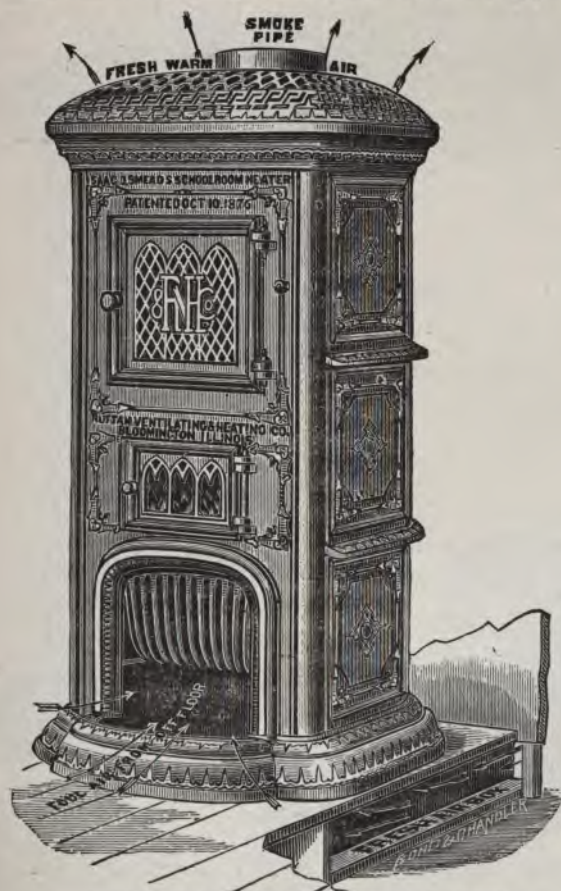
7. The storing of wood, even when well seasoned, and coal, particularly the soft variety, in the basement of school-houses, cannot be approved on hygienic principles. The latter is liable to discharge sulphurous gases; and the former, deleterious vapors from the fermentation of sap and the decomposition of insects hidden in it. These substances penetrate the school and recitation rooms through cracks in the floors and through doors leading to the basement, and produce dangerous diseases.

8. A ventilating stove, invented by Isaac D. Smead, the President of the Ruttan Manufacturing Company, is used in a number of the school buildings of the State. It is designed for single rooms, and is specially adapted to country and village school-houses. I am not acquainted with any heating apparatus, so reasonable in price, so small in size, and so satisfactory in operation, which will both warm and ventilate the houses with one or two school rooms. It is manufactured and sold by this Company, who transact business at Chicago, Illinois, at Toledo, Ohio, and at Kansas City, Missouri. It has been purchased by school boards in this State, singly for \$90, and two or more for \$75 to \$80 each. It weighs about 1,000 pounds, and is made of thick, solid castings of iron. Its durability with fair usage cannot be questioned. It burns wood, or soft or hard coal equally well. It is set in the

Heating.

room where the pupils study, instead in a cellar beneath ; is more easily supplied with fuel on account of this, and more readily managed by the teacher.

The accompanying illustrations give an excellent view of this heater. It occupies but little more floor space than the ordinary box stove, and can easily be located in a corner of the school room, with the aperture beneath leading to the fresh air-chamber. For this heater a ventilating base, which does not appear in these



SCHOOL ROOM HEATER - EXTERIOR VIEW.

Heating.

illustrations, has been constructed. It raises the heater six inches in height, and adds to the already ornamental appearance thereof. It contains a slide by which a number of openings in it can be closed, and the external air will be drawn up in contact with the heating surface. When these are opened, and the aperture underneath is closed, the air in the room will be driven in a circuit through the heater, and quickly warmed. This could be done on cold mornings before the session of the school.



SCHOOL ROOM HEATER — INTERIOR VIEW.

Heating.

The exterior view presents the arrangement for the open fire, and the heavy grates for holding the fuel. The feet of the children can readily be warmed here; the poisonous gases of the room in part conducted away, and a large quantity of air regularly supplied for consumption in the heater. One of the doors in front admits the wood or coal, and the other allows the cleaning of the heating tubes. Through the perforations on top the warm air is forced into the room and upward toward the ceiling. The smoke pipe is ten inches in diameter, and permits a sufficient amount of air to pass through the fire-box to produce complete combustion, and carry away the gases and watery vapor.

The interior view shows that this heater is simply a small hot-air furnace. The fire is conducted back and forth through tubes, which furnish an unusually large heating surface. The incoming fresh air is drawn, in an ample volume, around the fire-box and over the tubes, receiving for each cubic foot only a moderate amount of heat; and then enters the school room. Under ordinary conditions this heater supplies 325 cubic feet of this air per minute, the quantity required for 42 to 48 children, as before stated. With the accompanying facilities for ventilation, as exhibited in the designs for the one-room school-houses, this heater will entirely change, every thirty minutes, the air in a building which accommodates these numbers of children. The door for the open grate and the dampers inside regulate the supply of air for the burning fuel; and consequently, the heat imparted to the inflowing fresh air. The casing is made of cast-iron, and radiates so little heat that pupils can sit within three or four feet of the heater, and experience no inconvenience from it. The company furnishing this apparatus intend to manufacture a smaller one, sold for \$60.00 to \$65.00, and adapted to school rooms which provide seating for 30 to 36 pupils.

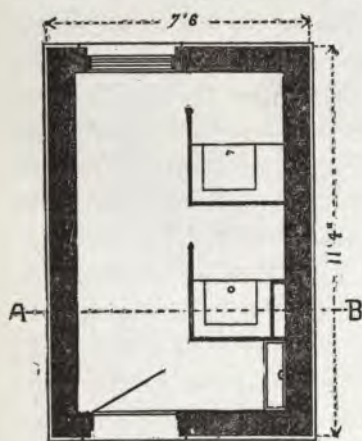
The large Ruttan hot air furnaces are constructed on the same principles, though they are more complicated in their arrangements. The methods of their application to warming and ven-

Construction of Outhouses.

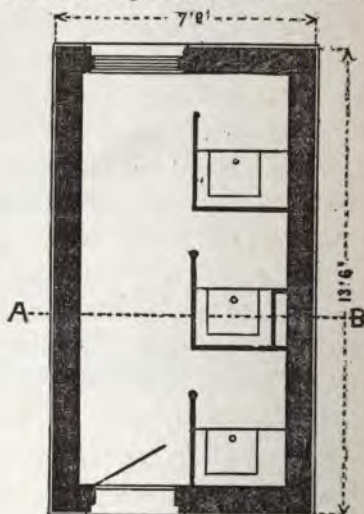
tilating the larger school-houses are indicated in the designs elsewhere given. One of these furnaces, of the medium size, will supply 3,000 cubic feet of warm air per minute, under average circumstances. This is a sufficient amount for a school of about 250 children.

XV. CONSTRUCTION OF OUTHOUSES.

1. The outhouses, one for each sex, should be plainly and substantially built. Their internal arrangements should be such that they can easily be kept clean. Fine sand should be thoroughly sifted on the last coat of paint on the inside before drying, to prevent the children from marking the face of the wood with pencils. The means for the complete ventilation of the building, embracing the vault underneath, should be provided. A window for the admission of light, and, if possible, so situated that sunshine will enter the room some portion of each day, should be included. For the boys' outhouse, urinals should be constructed in the room in addition to the seats. In both outhouses, conveniences should be supplied for the isolation and comparative seclusion of the children, particularly the delicate and nervous ones,



OUTHOUSE FOR BOYS —
FLOOR PLAN.



OUTHOUSE FOR GIRLS —
FLOOR PLAN.

Construction of Outhouses.

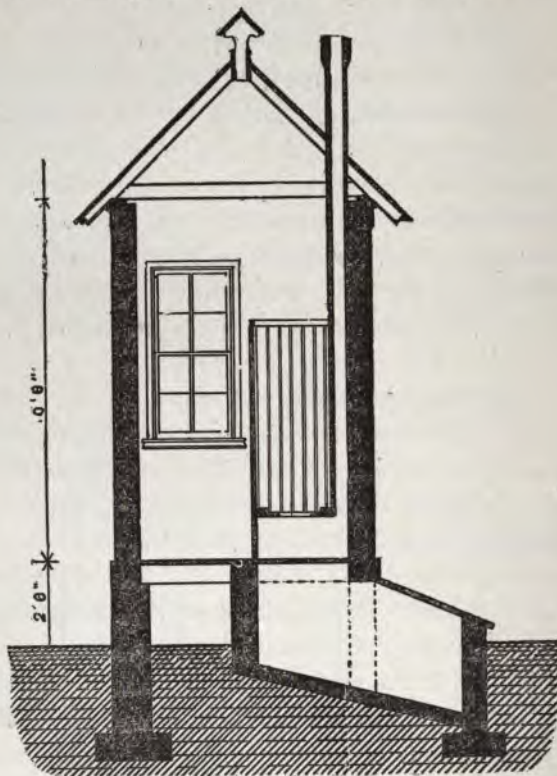
when they visit the inclosure to allow nature to perform its usual offices. The receptacle for the excrements should be made watertight, so that no portion of them can be filtered into the ground.

The principles essential to the construction of comple outhouses, are embraced in the plans here presented. The one for girls differs from that for boys in having the building a few inches longer, and a seat in the place of the urinal. Each building will accommodate on an average thirty-six children, and both are therefore large enough for an ordinary school of two departments. For a greater number of pupils of both sexes, one or more urinals in the boys' outhouse, and other seats in both houses should be added. The conveniences for the usual country school will be ample by omitting one seat in the girls' outhouse, and the urinal in the boys' house, substituting for it an enamelled iron one, of the lipped pattern, in the corner near the window, and conveying its contents into the vault.

In these plans the houses are raised too high above the surface of the ground. The height of one foot is sufficient, and the entrance to them will be more easy. The foundation of stone or brick should be laid in the manner indicated. The sides and bottom of each vault must be built of brick laid in common cement, and the inside plastered with mortar composed of the same material. The ground back of the bricks should be compact and solid, so that the pressure in the vault will not displace any of them. The door attached to the vault in the rear of each house should be strongly made, and fastened down by a lock. From this vault a wooden flue, without any cracks, extends above the roof of the house, for the purpose of ventilation. As will be seen, an opening, four inches in width, can be constructed in the ridge of the roof, when considered necessary to remove the foul air in the room beneath. Over this opening a hood should be built, to prevent rain or snow from falling inside. As the wind passes under this hood, it will aid materially in withdrawing through this opening the impurities from the building. The sides of the room should be

Construction of Outhouses.

covered tightly with matched fencing, and then painted as before described. The partitions for each seat should be six feet in height; and when small children attend the school, at least one of the seats should always be made so low that they can occupy it and have their feet resting at the same time on the floor.



CROSS SECTION FOR BOTH OUTHOUSES.

Dry earth, finely pulverized, perfectly disinfects all odors or gases arising from the decomposition of excrementitious substances; and should be quite often thinly spread over these in the vaults. This can be done through the doors in the rear of the houses. The bottoms of the vaults slope outward, to assist in the removal of their deposits through these doors.

Plans and Specifications.

XVI. PLANS AND SPECIFICATIONS.

1. *One-room School-houses.* These are designed to meet the wants of the public schools in the country districts and of such schools with one department in our villages and cities. They each will accommodate thirty to sixty-five pupils. The details of their construction and arrangements for the use of the schools, are presented in the plans and specifications accompanying the several designs. Different styles of these houses are furnished to permit selection in reference to the tastes of various communities.

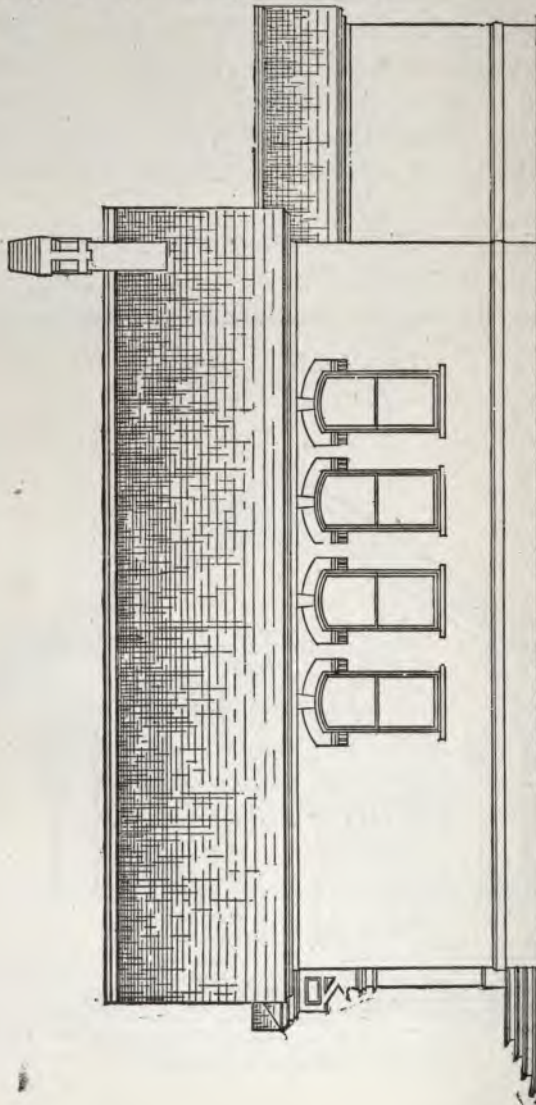
The first design was prepared by Messrs. Edbrooke and Burnham, architects, of Chicago, Illinois. It is very plain, yet pleasing in appearance. In its present form the house is especially adapted



DESIGN 1—FRONT ELEVATION.

Plans and Specifications.

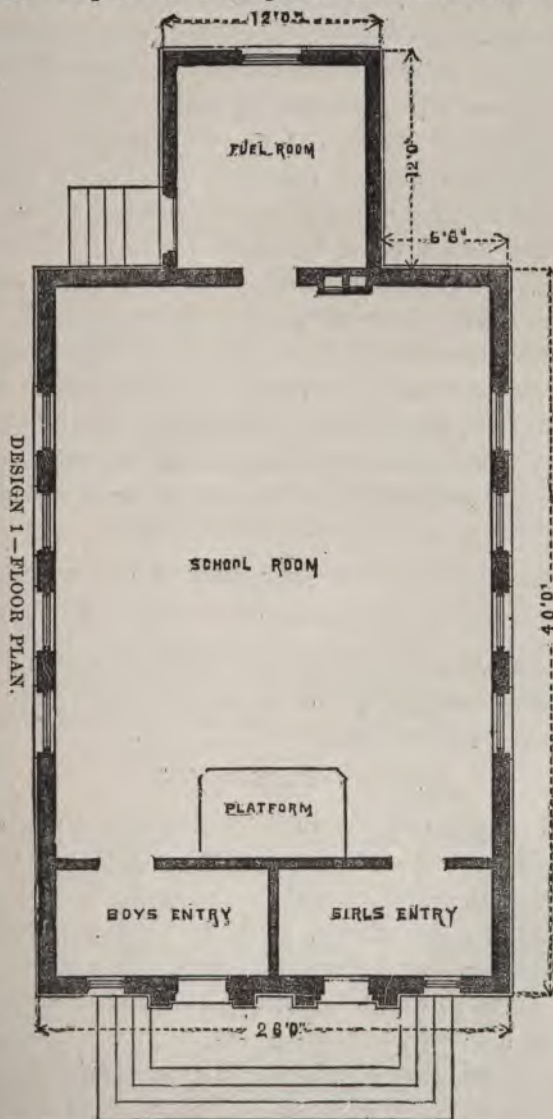
to the level landscapes of our prairies. The walls are constructed of brick. If wood should take its place, the cost of erection would, of course, be somewhat lessened, and the attractiveness of the building would, in reality, be improved.



DESIGN 1—SIDE ELEVATION.

Plans and Specifications.

The school room has 756 feet of floor area, and the height of 12 feet, and will seat forty-eight pupils at double desks, and forty at single ones. It provides $15\frac{3}{4}$ square feet of floor surface, and 189



Plans and Specifications.

cubic feet of air space for each of the forty-eight pupils; and 18.9 square feet of the former and 226.8 cubic feet of the latter for each of the forty pupils. The windows are set with their stools three feet above the floor, while their tops reach within two feet of the ceiling. On both sides of the room, they are grouped together in the most approved style; and their aggregate surface equals nearly one-fifth of the floor area. The teacher at his desk is not compelled to face any windows in the opposite end of the room. The facilities for warming and ventilation, exhibited in the next design for school-houses, could be adopted for this building with great advantage. If the common stove is used instead of the school room heater, a register and a fresh-air chamber beneath should be introduced, and the two flues in the perpendicular shaft should not be changed in any respect. The transverse section of these flues is 10 by 12 inches for the smoke and 12 by 12 inches for the foul air. The orifice in the ventilating flue should be made at its base, just above the floor, when the room is heated by a stove.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

Excavation.

Do all excavating required for all foundations of the depth of three feet, and use all of the earth so excavated in filling and grading around the building.

Stone and Brick Work.

Build all piers, foundation walls, and footings of the best quality of rubble-stone found in the vicinity. Build the walls above the foundation, the chimney, and the chimney top, as shown, of a good quality of merchantable, hard-burnt, common brick. Lay the joints close and bond every fifth course with a heading course. All bed joints to be well filled with mortar, and all vertical joints well slushed up.

Build all work plumb, straight, and true, and in every respect finish in a thorough and workman-like manner, and in accordance

Plans and Specifications.

with plan and elevations. All stone-work below ground line to be laid up in best quality of mortar. Build a dwarf wall of stone along under center of the floor.

Anchor well the joists and timbers of all floors, ceilings, and the roof. Strike all joints in a neat manner on the outside.

Wall Facing.

All outside walls above the foundation to be faced with a good quality of red or cream-colored stock brick, laid up with common lime mortar and neatly struck joints.

Cut Stone.

Furnish and set all cut stone-work connected with the building, the same to consist of keys to all windows on all sides of the building, 5 inches thick, 5 by 8-inch sills for all windows, 6 by 8-inch water-table, extending around entire building. Door-sills to be 6 inches thick for all doors, with their proper lengths and widths. All to be of the best quality of stone found in the vicinity. All to be finely bush-hammered and properly margined.

Lath and Plastering.

All walls and ceilings throughout the entire building, except the wood-house, will be lathed with a good quality of pine lath, and plastered with two good heavy coats of plastering,—one coat being brown mortar and one white sand, hard-finish. All completed in best manner.

Carpenter and Joiner Work.

All joists, studding, and rough lumber used to be the best common and as well seasoned as can be got. The joists, studding, etc., must be sized to uniform widths, and their edges planed true. The joists should be cambered about one-half inch in 25 feet. Furnish all lumber, timber, flooring, etc., required by the plan and elevations.

Height of Story.

The story of the school room and entries to be 12 feet between joists.

Plans and Specifications.

Size of Joists, Timbers, Etc.

The principal floor joists to be 2 by 12-inch, 16 inches from centers, supported by dwarf wall through center. Ceiling joists over school room to be 2 by 10-inch, placed 20 inches from centers. Rafters 2 by 6-inch, and placed 20 inches from centers. Braces to be 1 by 6-inch. The entire ceiling to be furred with 1 by 2-inch strips, placed 16 inches from centers, thoroughly nailed to ceiling joists. Construct all roof braces to correspond with the elevations. All to be thoroughly nailed. All partition studding to be 2 by 4-inch, and placed 16 inches from centers.

All outside walls above the floor will be furred with 1 by 2-inch strips, firmly nailed to walls, 16 inches from centers.

All joists must be thoroughly bridged, and have two rows of 2 by 3-inch cross-bridging, well nailed with two ten-penny nails in each end of each piece.

The ceiling joists to have two rows of bridging as above; grounds will be put up for the finish of all doors, windows, and wainscoting.

Floor.

The building throughout to have a double thick floor, first thickness of dressed and matched fencing, and the top thickness of 1 by 6-inch, matched and dressed C. flooring. All properly laid, closely jointed, and well nailed. It covers the surface of 6 by 24 feet in both entries, and 24 by 31½ feet in the school room.

Wainscoting.

Wainscot the school room the height of the window-stool, and the wardrobes 7 feet high. All with 1 by 3-inch, matched and beaded, clear, and seasoned pine ceiling; all with ¼-round next to the floor and a neat cap. The cap on wainscoting in the school room under the blackboard will have a chalk shelf on top, with a cove worked in the same to hold chalk.

Finish.

All doors and windows, and openings, throughout entire build-

Plans and Specifications.

ing, finish with a 5½-inch casing and band mold. Place transoms over front doors, the size as shown by front elevation. All inside doors to be 1½ inches thick, O. G., and four panels. Front doors to be 2½ inches thick, raised moldings outside and inside. All of the form and style as shown.

Windows.

All windows throughout to be of the form, style, and size as shown,—the frames all to be made boxed for weights, with ⅝-inch pine pulley stiles. All sash 1½ inches thick, and of pine. All frames made with best axle pulleys, and all sash hung with best cord and cast-iron weights.

Inside Blinds.

All windows except for wood-house will have inside blinds, four folds each; all with rolling slats in each fold. Supply and fix to place all door and window stops, with black walnut thresholds for all doors; and any and all other trimmings or finish required for the proper completion of all parts of the building and works.

All flooring and finishing lumber and mill work to be of a good quality of kiln-dried materials; and all door, sash, and blind stuff to be clear white pine.

Roofs.

Build and construct the roofs in accordance with the elevations, in the most thorough and workman-like manner.

Sheathe the roofs with dressed and matched, 1 by 6-inch fencing flooring, closely joined and well nailed.

Build all cornices, belts, etc., of a good quality of pine stuff, as shown.

Tin-work.

Flash around the chimney, deck on front porch or entrance and other required places, with best L. C. roofing tin, of proper width and length for these places.

Plans and Specifications.

All tin to be properly laid with locked and soldered joints, and well secured to their respective places, and made perfectly water-tight.

Shingles.

Shingle the roofs with best quality of sawed shingles, laid not more than five inches to the weather, and well nailed. All shingles to be laid straight, true, and even.

Porch, Steps, Etc.

Build front porch and steps in every way as required by plan and elevations, of a good quality of seasoned pine lumber. Lay the floors with 1 by 3-inch matched flooring, joints set in white lead.

Ceil overhead with 1 by 3-inch beaded ceiling. Treads to be $1\frac{1}{2}$ inches of pine, $\frac{7}{8}$ -inch risers; and finish the nosings with scotia, etc., in a neat manner.

Open scroll, cast-iron, ventilation front to be put in the vent-stack in the school room; and thimble in chimney to be 7 or 10 inches in diameter.

Hardware Trimmings.

Furnish and fix to place, properly on all doors, sash, and blinds, suitable trimmings, comprising all locks, bolts, butts, etc. All doors to be hung with three good loose-joint cast butts; and have a good quality of mortise-locks with brass works and fronts, steel keys, and tucker bronze knobs and trimmings. All sash in the building to have a good quality of sash locks. All inside blinds hung with suitable wrought butts and flaps, and white porcelain knobs, etc. All transoms hung with transom pivots and fastened with imitation bronze catches; and all outside doors, with good heavy locks, bolts, etc.

All wardrobes will have two rows of double clothes-hooks, on two sides of same.

Plans and Specifications.

Painting and Glazing.

All exterior wood and metal work that is usually painted,—say all excepting shingles—will be painted with two good heavy coats of lead and oil of best quality. All metal work must first have one coat of metallic paint. All wood-work in the school room and entries, excepting blinds, will be grained in imitation of dark oak on two good coats of lead and oil. All to be neatly shaded and varnished with one good coat of varnish.

Front doors grained both sides the same, and shaded and varnished.

All inside blinds to have one good heavy coat of shellac, and one coat of a good quality of varnish.

All work in wood-house to be painted two good heavy coats of drab-colored paint.

All glass throughout the entire building, as shown, to be of the best quality of single thick, American glass. All properly set and bedded to place, and left whole and sound on the completion of the entire work.

Bill of Materials.

- 14½ cords of rubble-stone.
- 32,000 brick.
- 55 barrels of lime.
- 37 loads of sand.
- 17 bushels of plastering hair.
- 4,300 feet of lath.
- 1,738 feet, 62 pieces, 2 by 12 inches, 14 feet long, for joists.
- 192 feet, 8 pieces, 2 by 12 inches, 12 feet long, for joists.
- 1,189 feet, 25 pieces, 2 by 10 inches, 26 feet long, for ceiling joists.
- 536 feet, 52 pieces, 2 by 6 inches, 18 feet long, for rafters.
- 240 feet, 30 pieces, 1 by 6 inches, 16 feet long, for ties and braces.
- 213 feet, 10 pieces, 2 by 8 inches, 16 feet long, for wall-plates.

Plans and Specifications.

- 272 feet, 34 pieces, 2 by 4 inches, 12 feet long, for partition studding.
- 172 feet, 16 pieces, 2 by 4 inches, 16 feet long, for rafters for fuel room, etc.
- 2,000 feet, surfaced, common boards for roof.
- 1,300 feet, matched and dressed fencing for floor lining.
- 1,300 feet, matched and dressed, second clear flooring.
- 1,000 feet, 3-inch, clear, matched, and beaded wainscoting.
- 450 feet, 1 by 2-inch furring for walls and ceiling.
- 190 feet, 2 by 3-inch strips for bridging.
- 16,000 shingles, best quality, sawed.
- 800 feet, second clear, 1-inch boards for cornice, porch, etc.
- 60 feet, second clear, 3-inch flooring for porch.
- 300 feet, second clear, 1½-inch plank for steps, window-sills, etc.
- 240 feet, first clear, 1½-inch plank for door-jambs, chalk trough, etc.
- 500 feet, first clear, dressed, 1-inch boards for casings and inside finish.
- 186 feet, 5-inch crown-molding, lineal feet.
- 32 feet, 4-inch crown-molding, for porch, lineal feet.
- 174 feet, 3-inch bed-molding, lineal feet.
- 340 feet, 3-inch band-molding, lineal feet.
- 40 feet, 3-inch astragal-molding for blackboards.
- 200 feet, ¾-inch quarter-round for bottom of wainscoting.
- 9 feet, hard wood thresholds, ½ by 5 inches.
- 2 front doors, 2 feet 10 inches by 7 feet 6 inches, 2½ inches thick, molded, 5 panels.
- 4 doors, 2 feet 10 inches by 7 feet 6 inches, 1½ inches thick, plain, 4 panels.
- 2 pairs of sash, 18 by 36 inches, glass 2 lights, 1½ inches thick, for segment heads.
- 9 pairs of sash, 24 by 36 inches, glass 2 lights, 1½ inches thick, for segment heads.

Plans and Specifications.

- 2 transom sash, 18 by 30 inches, glass 1 light, $1\frac{3}{4}$ inches thick, for segment heads.
- 10 sets of inside blinds.
- 54 feet of tin roofing.
- 74 pieces of tin flashing.
- 44 2-inch axle pulleys.
- 400 pounds of sash weights.
- 230 feet of sash cord.
- 40 pairs, 2 by $2\frac{1}{4}$ inches, iron blind butts with screws.
- 40 pairs, $1\frac{1}{2}$ by $2\frac{1}{4}$ inches, iron blind flaps with screws.
- 20 tucker bronze shutter bars.
- 20 $\frac{3}{4}$ -inch porcelain shutter knobs.
- 50 clothes-hooks.
- 3 pairs, 5 by 5 inches, japanned, loose-joint butts.
- 6 pairs, $4\frac{1}{2}$ by $4\frac{1}{2}$ inches, japanned, loose-joint butts.
- 2 brass faced Yale locks, with steel keys.
- 4 brass faced mortise-locks.
- 11 sash locks.
- 1 7 or 10-inch wall thimble and cap.
- 1 keg, three-penny lath nails.
- 1 keg, four-penny shingle nails.
- 1 keg, eight-penny common nails.
- 1 keg, ten-penny common nails.
- 50 pounds, eight-penny casing nails.
- 50 pounds, ten-penny casing nails.

The second design for a one-room school building was also prepared by Messrs. Edbrooke and Burnham, architects, Chicago. It is beautiful in style, complete in its symmetry, and convenient in its internal arrangements. Three years since, a house of this model was erected in a small village in the West for \$950.00.

The base of the building proper is $24\frac{1}{2}$ by 36 feet, and its height 13 feet between joists; and the base of the wood-house is $8\frac{1}{2}$ by $11\frac{3}{4}$ feet, and its height 10 feet. The floor surface of the wardrobes,

Plans and Specifications.

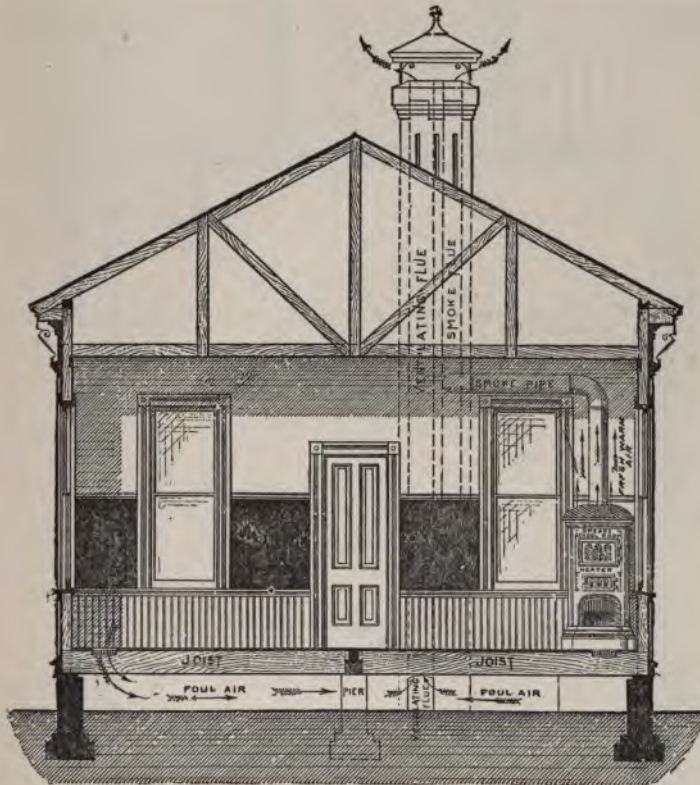
each 5 by $8\frac{1}{2}$ feet, is 85 square feet; and of the school room, 23 by 29 feet, is 667 square feet. It furnishes ample space for forty-two pupils at double desks, and it can well accommodate thirty-six at single desks. For each of the former number of pupils, the school room provides nearly 16 square feet of floor, and fully 206 cubic feet of air; and for the latter number, $18\frac{1}{2}$ square feet of floor, and 240.8 cubic feet of air. The area of the windows in this room is equal to almost one-fourth of its floor surface.



DESIGN 2—PERSPECTIVE VIEW.

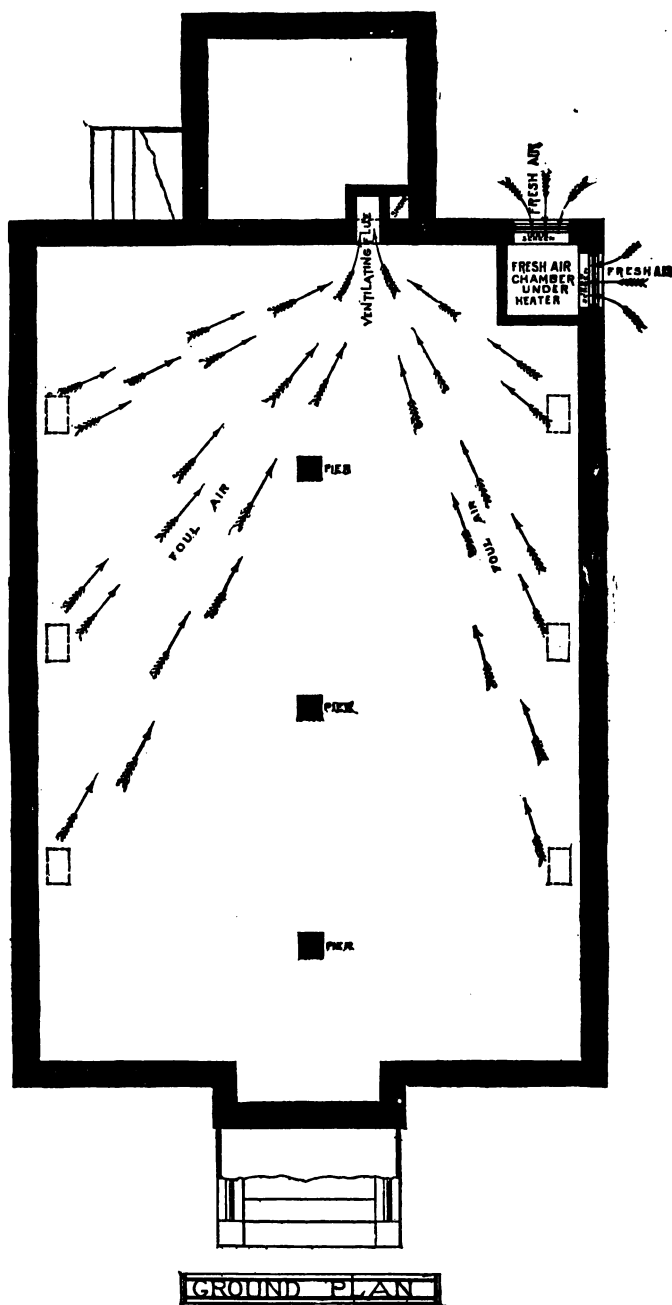
The main feature of this building consists in the superior facilities for warming and ventilating the school room. The fresh air, after entering the air-chamber through the openings in the outside walls under the joists, passes another opening at least 20 by 22 inches in size, into one of Smead's school room heaters, where it is warmed to about 120° on an average. It then is driven into the room in the volume already mentioned, and distributed throughout in course of thirty minutes. It is afterwards withdrawn, as it descends to the floor, first, in part by the draught of the heater; and second, through the registers, and under the floor, and then into the ventilating flue in the chimney. Three forces

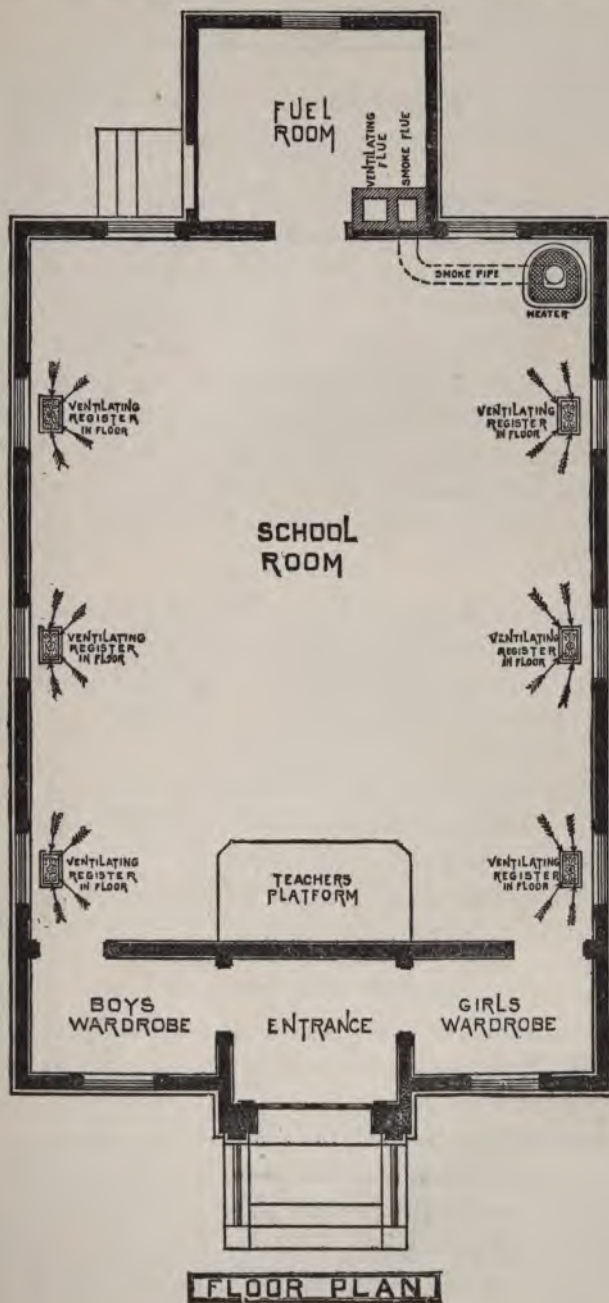
Plans and Specifications.



SECTION

are always operating in cold weather to drive the foul air through these registers, viz. : the expansive power given by the heater to the air as it enters the room ; the condensation of the air as it cools rapidly in contact with the windows, where it drops immediately into the registers beneath ; and the exhaustion created in the ventilating flue by the heat derived from the smoke escaping through another flue in the chimney. If desired, a cheaper device in the form of a cast-iron ventilating base can be placed in the wall next to the floor under each window of the room, in the place of the register, as shown on the floor plan.





Plans and Specifications.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

Excavating.

Do all necessary excavating for the footings of the foundations and piers; and use all earth so excavated in grading around the building, or haul the same away from the premises, if the building committee so direct.

Mason Work.

All foundations for main outside walls and the piers in center of building to be of the best rubble-stone found in the vicinity. Use the largest stones for the footings. All to be flat-bedded, and laid in best common mortar. All work exposed to view above ground line to be neatly pointed.

Brick-work.

Build the vent and smoke flues full height from top of footings, and the foundation for Smead's school room heater of the best common brick found in the vicinity. Leave two openings in outside wall to admit fresh air to heater. Provide a 4 by 8-inch, cut stone sill, four inches longer than opening.

Also leave an opening in the bottom of vent-stack, as shown by section; this opening to be below the bottom of joists, and must be equal in area to that of vent-flue.

Top out the vent-stack, as shown in perspective, and build in any and all supports for ventilator cap.

Carpenter and Joiner Work.

All the materials of every kind to be the best quality of their grade. The finishing lumber is to be well seasoned, and kept dry till put up.

Unless otherwise specified, the timber to be used is to be white pine, of a good quality, and free from defects of any kind; and in all cases to be suitable for the place where it is to be used. The joists and studding are to be dry, if such can be procured. They are to be made of equal widths, if not already so.

Plans and Specifications.

For dimensions and divisions of the building, reference will be had to the plans. Roof and space under joists all as shown by the illustrations.

All studding to be 2 by 4-inch, placed 16 inches from centers; all to have two rows of cross-bridging, well fitted and thoroughly nailed. Make all corners plumb and true. All partitions to have single footings and double caps.

Joists, 2 by 10-inch, placed 16 inches from centers; ceiling joists, 2 by 6-inch, placed 20 inches from centers; roof rafters, 2 by 6-inch, placed 20 inches from centers; and roof braces, 1 by 6-inch, placed 20 inches from centers.

Construct roof as shown, the ceiling joists, roof rafters, and braces, all to be thoroughly nailed, and well secured to plate.

Wall-plates.

The plates on top of stone foundation are to be in two thicknesses, the bottom plate 2 by 8-inch, and top thickness 1 by 8-inch; the joints to be broken, and this plate to be secured to stone-wall by placing $\frac{5}{8}$ -inch bolts in the wall every 8 feet.

Girder.

The center girder to be 8 by 10-inch; the joist to be notched into same and well spiked. There will be no outside sills, as shown by section; and to make a perfect job, place pieces of 2 by 10-inch joists, 14 inches long, between these outer ends of the joists, and thoroughly spike them in place. All the joists and these short pieces to be thoroughly spiked to the wall-plate.

Bridging.

Each span of main floor joists to have one row of 2 by 3-inch bridging, well fitted and nailed with two ten-penny nails at each end. The ceiling joists to have two rows, as above specified, for main joists.

Headers and Trimmers.

All headers and trimmers must be double thick and thoroughly secured.

Plans and Specifications.

Roof Lining.

Line the roof with matched and dressed, common fencing flooring, laid close and thoroughly nailed.

Water Gutters.

These are made at the eaves by placing 2 by 4-inch studding, dressed, on top of shingles; and covering the same with best I. C. roofing tin, painted on the under side.

Shingles.

Shingle the main roof and bell tower roof with the best quality of sawed pine shingles, laid not more than 4 inches to the weather, and well nailed.

Flooring

All flooring to be as follows, and to be double thick;—the first layer to be common, surfaced boards, and to be put down when joists are in place, and to extend out to ends of joists and thoroughly nailed. No partitions to be set until this first thickness of floor is laid.

The top floor to be 1 by 4-inch, surfaced, and jointed, square-edge B. flooring, nailed through the face with two ten-penny nails at each joist in each piece of flooring.

Cornice.

Exterior cornice to extend all around building, as shown, and all to be of pine.

Felting.

Cover the sheathing all over with best building felting, well lapped.

Sheathing.

The entire outside of building to be sheathed with common, surfaced boards, well nailed, and laid close.

Siding.

Cover the walls of building with best quality of 6-inch siding, laid not more than 4 inches to the weather; all to be thoroughly nailed.

Plans and Specifications.

Put on all corner-boards, window casings, water-table, etc., as shown. Casings and corner-boards to be $1\frac{1}{8}$ inches thick and $5\frac{3}{4}$ inches wide.

Door Steps and Hood.

Build front door steps as shown; treads to be $1\frac{3}{4}$ inches thick, with $\frac{7}{8}$ -inch risers. Construct the buttress string as shown; and complete the hood and pilasters at front door in a complete manner.

Bell Tower.

Construct the bell tower as shown, and furnish the same with a neat galvanized iron finial. Tin the deck, and make the same perfectly water-tight.

Cresting.

Furnish and place the wood cresting on ridge of roof, and finish same in a neat manner, all as in perspective.

Inside Finish.

All inside doors and windows to have a neat center beaded $1\frac{1}{8}$ by $5\frac{3}{4}$ -inch pilaster finish, with a neatly turned stop block at corners. Wainscot the walls of school room the height of stool cap of windows, with 1 by 3-inch narrow beaded stuff; the hall to be wainscoted 4 feet high, and wardrobes 6 feet high, and of same material as above specified for school room. Cap the same with a neat mold. The wainscoting under blackboard in school room to have a wide cap with groove in same to hold chalk.

Furnish and place a 3-inch astragal-mold on walls of school room, 4 feet above top of wainscoting, to separate blackboard from plastering.

Doors.

All inside doors to be $1\frac{3}{4}$ -inch, O. G., and four panels. Front doors to be molded as shown.

Windows.

All windows to have pulleys, etc., and to be hung with best sash cord, and cast-iron weights.

Plans and Specifications.

Furnish the frame for fresh-air opening under school room heater. Make of $1\frac{1}{2}$ -inch stuff and place a $\frac{3}{8}$ -inch mesh woven wire-screen in same, to prevent vermin from entering the air-chamber.

All sash to be $1\frac{3}{8}$ inches thick, with $1\frac{1}{2}$ -inch check-rails.

Inside Blinds.

All windows in main building are to have inside blinds in four leaves, all to have rolling slats and no panels. Hang them with wrought iron butts, and fit them in a complete manner.

Grounds.

Put up $\frac{7}{8}$ by 2-inch grounds for all finish of doors, windows, and wainscoting.

Furring.

The ceiling of school room to be furred with 1 by 2-inch strips, placed 16 inches from centers; all to be well nailed to each ceiling joist.

Hardware, Trimmings, Etc.

Hang the outside main entrance doors, each with three $5\frac{1}{2}$ by $5\frac{1}{2}$ -inch loose-joint wrought japanned butts. Hang all other doors with three 5 by 5-inch wrought japanned butts.

The front doors and all other doors to have black or jet knobs.

To the front entrance doors put on a good brass-faced mortise-lock, with safe night works, steel keys, etc. Put on all other doors a good quality of brass-faced mortise-locks.

The front entrance doors to have imitation face, and bolts at top and bottom.

Hang the front transom at top with wrought iron hinges, and put on an imitation bronze cupboard catch at bottom.

All sash to have black japanned sash locks of a good quality; all inside blinds to have imitation bronze shutter bars, knobs, etc., and all sash to have imitation bronze sash lifts.

Plans and Specifications.

Clothes hooks.

Each wardrobe to have 25 good strong double clothes-hooks, such as generally used in school buildings.

Put good rubber tipped bumpers, or base knobs, behind all doors, to prevent them from striking the plastering.

Also, furnish and place in floor, where shown, the floor ventilating registers, same to be black japanned, with rolling slats or fans, and filling the openings 12 by 18 inches each.

Finally.

The carpenter must clear out all rubbish, lumber, benches, etc., and sweep all floors clean, and leave the building free from all dirt.

Scuttle.

Build a scuttle to attic where directed, and make a good substantial step-ladder to the same.

Painting and Glazing.

Paint all exterior wood and metal work; three coats of best quality of white lead and linseed-oil, mixed with color, if so directed by the building committee. All tin and metal-work must first have one heavy coat of metallic paint. All sash and front doors to be painted a dark olive green.

All inside work to have two good heavy coats of best quality of paint, the last coat to be a neutral tint or other shade, as building committee may suggest. All inside blinds to be shel-laced and varnished. Prime all work in the fuel room.

All glass throughout to be best quality, single thick American glass, four lights to each window; all to be thoroughly bedded and properly set in place, and left whole and sound on the completion of the entire work.

Lath and Plastering.

The school room, wardrobes, and entrance hall are to have two coats of plastering, the first coat to be of brown mortar, and the

Plans and Specifications.

second coat of plaster of Paris and white sand. The hard-finish all put on true and even.

The fuel room will have one heavy coat of brown mortar.

Blackboards.

The plastering to form the blackboard in school room is made by mixing sufficient lamp-black in the last coat, to make a dark or blue black color. This must be put on perfectly true and even, and must be satisfactory to the school board or building committee; and then the surface covered with a sufficient number of coats of black or green liquid slating to make a solid layer.

Heating and Ventilation.

The contractors for this entire work should carefully study the mode of heating and ventilation of this building, as shown in the plans and as heretofore described. Particular attention must be paid by them in making the floor and walls tight, and excluding from the room all external air from these sources.

Bill of Materials.

- 11 $\frac{3}{4}$ cords of rubble-stone.
- 1,800 brick.
- 26 barrels of lime, 3 bushels to a barrel.
- 16 yards of sand.
- 13 bushels of plastering hair.
- 3,500 feet of lath.
- 1 10-inch wall thimble and cap.
- 267 feet, 2 pieces, 8 by 10 inches, 20 feet, for girders.
- 1,582 feet, 68 pieces, 2 by 10 inches, 14 feet, for joists.
- 140 feet, 7 pieces, 2 by 10 inches, 12 feet, for joists.
- 572 feet, 22 pieces, 2 by 6 inches, 26 feet, for ceiling joists.
- 84 feet, 7 pieces, 2 by 6 inches, 12 feet, for ceiling joists.
- 480 feet, 60 pieces, 1 by 6 inches, 16 feet, for ties and braces and for ceiling joists and rafters.
- 96 feet, 4 pieces, 2 by 8 inches, 18 feet, for wall-plates.

Plans and Specifications.

- 117 feet, 4 pieces, 2 by 8 inches, 22 feet, for hip-rafters.
- 1,387 feet, 130 pieces, 2 by 4 inches, 16 feet, for outside stud-
ding.
- 480 feet, 60 pieces, 2 by 4 inches, 12 feet, for partition stud-
ding, etc.
- 896 feet, 56 pieces, 2 by 6 inches, 16 feet, for rafters.
- 90 feet, 2 by 3-inch strips for bridging.
- 5,000 feet, surfaced common boards for floor lining, roof, and
sheathing.
- 2,300 feet, first clear siding.
- 1,300 feet, second clear 4-inch jointed flooring.
- 800 feet, first clear 3-inch matched and beaded wainscoting.
- 200 feet, 1 by 2-inch furring for ceiling.
- 278 pounds of building paper.
- 13,000 shingles, best quality, sawed.
- 1,600 feet, second clear 1-inch dressed boards for cornice, frames,
etc.
- 300 feet, second clear 2-inch plank for window-sills, buttress,
etc.
- 900 feet, first and second clear $1\frac{1}{4}$ -inch plank for door-jambs,
casings, water-table, etc.
- 200 lineal feet, 5-inch crown-molding.
- 186 lineal feet, 3-inch bed-molding.
- 186 lineal feet, $2\frac{1}{2}$ -inch foot-molding.
- 40 lineal feet, 3-inch astragal molding for blackboard.
- 18 feet, hard wood thresholds, $\frac{1}{2}$ by 5 inches.
- 2 front doors, 2 feet 6 inches by 8 feet, $1\frac{3}{4}$ inches thick, 6
panels.
- 6 inside doors, 2 feet 10 inches by 8 feet, $1\frac{3}{4}$ inches thick, 4
panels.
- 11 pairs of sash, 28 by 40-inch glass, 2 lights.
- 1 transom sash, 2 by 5 feet outside.
- 10 pairs of inside blinds.
- 144 feet, 14-inch tin gutter.

Plans and Specifications.

- 50 feet, tin deck.
- 80 pieces, tin flashing.
- 6 12 by 18-inch japanned registers.
- 44 2-inch axle pulleys, with screws.
- 440 pounds of sash weights.
- 11 sash locks.
- 250 feet of sash cord.
- 40 pairs, 2 by $2\frac{1}{4}$ inches, iron blind butts, with screws.
- 40 pairs, $1\frac{1}{4}$ by $2\frac{1}{4}$ inches, iron blind flaps, with screws.
- 20 tucker bronze shutter bars.
- 20 tucker bronze blind knobs.
- 50 clothes-hooks.
- 3 pairs, $5\frac{1}{2}$ by $5\frac{1}{2}$ inches, japanned loose pin butts.
- 6 pairs, 5 by 5 inches, japanned loose pin butts.
- 1 brass-faced Yale lock, with steel keys.
- 6 brass-faced mortise-locks.
- 1 pair, iron-faced $\frac{5}{8}$ -inch flush bolts.
- 1 keg, three-penny lath nails.
- 1 keg, four-penny shingle nails.
- 2 kegs, ten-penny common nails.
- 1 keg, twenty-penny common nails.
- 1 keg, ten-penny casing nails.

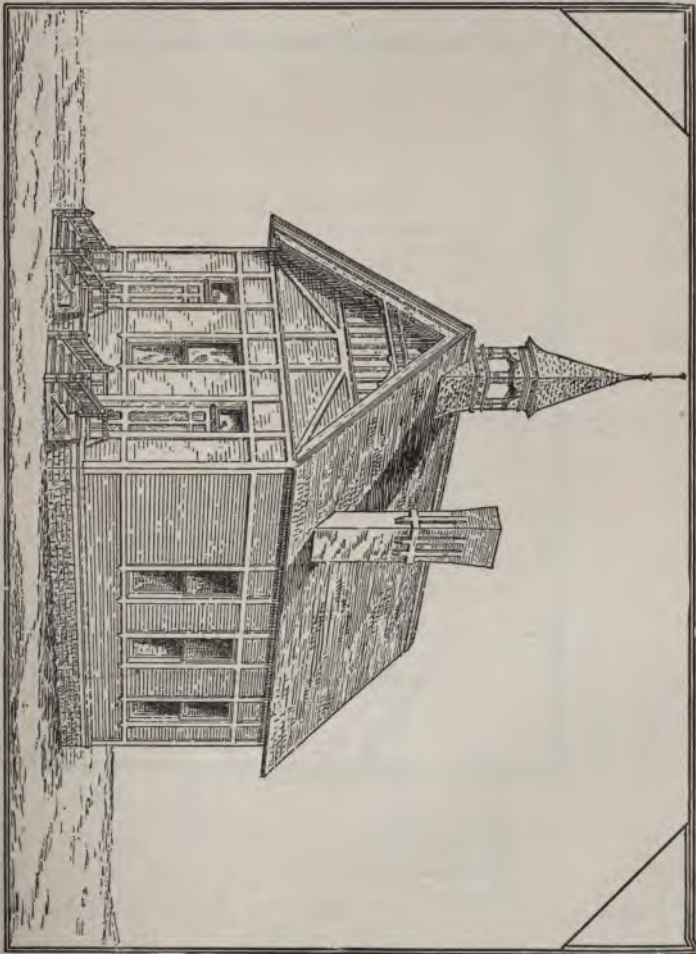
The third design presents the smallest one-room school-house whose plans and specifications are furnished in this circular. If the outside should be finished plain, with only common clap-boards, the estimated cost of erecting the house is \$750. The panel-work also, in the external walls, can be made in wood or brick, according to the preference of the school-district. It is believed that it will usually be omitted.

The arrangements on the inside have been selected with the view of providing as much floor space as possible, and still preserving the entries, which are also used as wardrobes, one for each

Plans and Specifications.

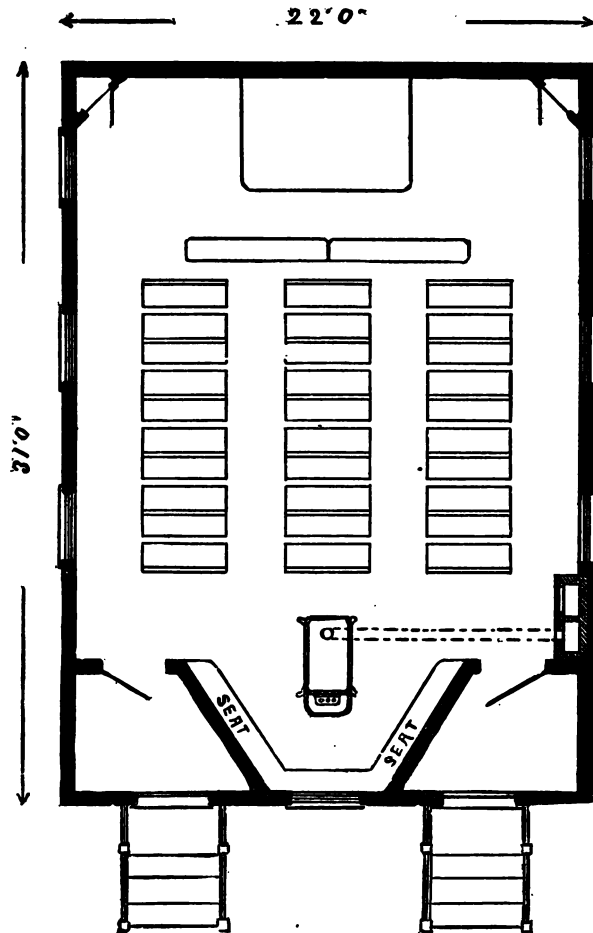
sex. The common box stove or the school room heater can be located in the recess between the entries, and not discommode the school in its movements about the room. The recess is utilized by seats which the children can occupy on reaching the school-house cold mornings. The teacher's platform is set in the rear end of the room, in accordance with the wishes of some teachers, and for the purpose of providing sufficient blackboard at that end for the school.

DESIGN 3--PERSPECTIVE VIEW.



Plans and Specifications.

As before observed, the chimney should never be built behind the teacher, and the stove-pipe run from the front end of the room, over the pupils' heads, into it. If preferred, it can be erected on the opposite side of the house from the position it now occupies, and near the other entry door. As already stated, its smoke-flue should have its transverse area of 10 by 12 inches; and its ventilating flue, at least 12 by 12 inches. This direction is imperative,



DESIGN 3—FLOOR PLAN.

Plans and Specifications.

if even tolerable ventilation with a stove is secured. The chimney should be carried, as indicated in the perspective, as high at least as the ridge of the roof, so that the wind will not cause in it a downward draught at any time.

Directly under the stove must be placed a large-sized common floor register, opening into a tight cold-air chamber, 3 by 3 feet in size. The outside orifice of this chamber can be constructed in the front wall between the steps. This should be the case, if the house is situated so as to face the west; but if any other direction, this orifice should be made in the western or northern wall, whether on the other end or either side of the house, and the fresh air conducted through a wooden duct under the floor joists to the chamber beneath the stove.

The room is designed for thirty pupils, seated at double desks. The floor area of the room, not including the recess for the stove, is 502 square feet and furnishes 16.7 such feet for each of the pupils. As the room is 12 feet high, it contains, outside the recess, 200.8 cubic feet of air for each pupil. The width of the entries is 5 feet, and the length of the longest side is $7\frac{1}{2}$ feet.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

(Prepared by B. S. HOXIE, Cooksville, Rock Conuty, Wis.)

Foundation Walls and Piers.

Excavate a trench 3 feet deep under the outside wall, and pits for the chimney and the three piers sustaining the floor. The wall must be 5 feet high, measuring from the bottom of the trench to the top of the wall; and in width, not less than 18 inches at the bottom and 12 inches at the top. It must be laid up in good lime mortar, and show 2 feet in height above the line of grading around the building. It must be coursed with quarry stone, with raised joints of mortar.

Build a chimney of two flues, as shown on perspective and floor plan; the top above the roof to be of hard brick; all joints to be well filled with mortar, and plastered smooth inside. Build three

Plans and Specifications.

piers, 18 by 18 inches, under the center sill, and piers under corners of platforms to outside doors.

Chimney must be, as shown on the plan, with ventilating shaft, 12 by 12 inches in the clear, and smoke-flue, 10 by 12 inches, and plastered on the inside; and a diamond face register, with no fans or rolling slats, placed on a level with the floor.

Sills and Joists.

Three sills run lengthwise the building, and there are two cross-sills, to be 6 by 8 inches, of sound timber. The joists, 2 by 8 inches, are set 12 inches to centers. Frame into the side sills the cross-sills, and spike or otherwise fasten the joists at the ends to prevent the building from spreading. The joists are to rest on top of center sill and spiked together.

Studding.

Studs are to be 2 by 4-inch stuff, 12 feet long, framed into sills, and to be double at corners and all doors and window openings. Set them 12 inches to centers behind the blackboard.

Plates.

Plates are to be of two thicknesses, well spiked to studding, and lapped so as to secure the greatest strength.

Upper Joists and Rafters.

Upper joists must be one continuous length, 2 by 6 inches, set 16 inches to centers, resting on the plates and spiked thereto.

The rafters are to be 2 by 4 inches, and of suitable length to give the required pitch to roof, as shown in perspective, well spiked to plates and joists, and set 16 inches to centers.

Joists and rafters are to be trussed together with 1 by 6-inch stuff, one piece nailed to peak of rafters and to center of joists, with intersecting pieces on each side nailed at right angles with the centers of the rafters, to prevent the roof and joists from sagging. All joists, studding, and rafters to be placed 16 inches from centers, except behind the blackboard.

Plans and Specifications.

Outside Sheeting and Weather-boards.

The building must be sheeted on outside of studding with good sound lumber, well nailed with ten-penny nails, and covered with tarred paper or building boards, well lapped, extending under corner-boards and window-frames. Siding must be best quality of pine, lapped not less than one inch and well nailed with eight-penny nails. If it is desired to have the building show panel-work as designed in the perspective, it may be done with 2 by 4-inch stuff, planed and rabbeted on upper edge or well flashed with tin, to keep out moisture from the sheeting. All outside casings and corner-boards must be free from sap-wood or shakes.

Roof and Cornice.

The roof must have a projection of 20 inches at least, with suitable moldings and drapery boards for cornice, using narrow wainscoting, beaded, or flooring with center bead, to form the plancier of cornice. Roof-boards must be laid with tight joints, and covered with best quality of pine or cedar shingles, laid not more than 5 inches to the weather. Finish the ridge with a neat ridge-board, well nailed on the shingles.

Floor.

Floor must be of two thicknesses, dressed lumber. The lining may be of common 6-inch seasoned boards, dressed and laid down before plastering. The floor must be of good second clear 6-inch flooring, jointed, and well nailed with ten-penny casing nails, breaking joints with the lining, and laid down after the room is plastered and wainscoted. And all inside finish must be put up after the plastering is well dried.

Plastering.

Plastering must reach down to the floor, to be what is known as two-coat work and hard-finish, except blackboard, which must have three coats and hard-finish, with a large percentage of plaster of Paris in each coat, and covered with patent slating rubbed down and coated until it presents a smooth surface.

Plans and Specifications.

Windows.

Windows must be hung and balanced with weights and best Silver-lake sash cord with suitable fastenings, Payson's tucker bronze sash lock and sash lifts. Size of glass, of four lights, 14 by 32 inches, best quality American sheet.

Wainscoting.

All rooms must be wainscoted with first clear narrow matched stuff, beaded, placed vertically, and finished with suitable cap and cove-molding. Cap of wainscoting under blackboard to form crayon troughs. The wainscoting in the clothes-rooms to be 6 feet high.

Teacher's Platform.

This platform to be, as shown on floor plan, $4\frac{1}{2}$ by 8 feet in size, and six inches high. Corner cupboards made as on plan.

Blackboard.

This should fill all the space at the end of the room between the cupboards, and the base placed two feet and six inches from the floor, and the top seven and a half feet from the same.

Steps.

These must be made, as shown on floor plan and perspective, of sound two-inch plank, dressed, and with easy steps. The posts and railings must be made of second clear lumber, dressed. Set japanned foot-scrapers one to each lower step.

Bell Tower.

Bell tower must be constructed as shown in perspective, and deck covered with tin and flashed around posts to prevent any leakage in roof, and covered outside with cut shingles.

Entries.

The entries must be provided with suitable shelving for dinner pails, and school-house wardrobe-hooks, according to the number of pupils. Each entry must be provided with a suitable bench or broad low shelf for wash basin and water-pail.

Plans and Specifications.

Doors.

Outside doors are to be of four or six panels, $1\frac{3}{4}$ inches in thickness, hung with three pairs of loose pin butts, and provided with heavy japanned handles, and dead locks to be 3 by 7 inches, with frames for transom lights, as shown in perspective. Inside doors to be 2 feet 10 inches by 6 feet 10 inches, and $1\frac{3}{4}$ inches thick, hung with three pairs of butts, each with the handles same as outside doors.

Painting.

The exterior of the building must be painted with two coats of paint, equal to best white lead and oil, of such color as the district board may direct. Inside painting must be of two good coats, and grained light oak, with good coat of varnish.

Finish.

All inside finish must be plain $4\frac{1}{2}$ -inch casings, with O. G. molding on face edge, with square-edge head-piece, 5 inches wide, and at least $\frac{1}{8}$ inch thicker than the face casings. All material used must be of best quality designated in bill of lumber, and all work done in the most substantial and workman-like manner, and to the acceptance of the building committee.

Bill of Materials.

3	sills, 6 by 8 inches, 31 feet long.
2	sills, 6 by 8 inches, 22 feet long.
56	pieces, 2 by 8 inches, 11 feet long.
25	pieces, 2 by 6 inches, 22 feet long.
70	pieces, 2 by 4 inches, 16 feet long.
70	pieces, 2 by 4 inches, 12 feet long.
18	pieces, 2 by 4 inches, 18 feet long.
12	pieces, 2 by 4 inches, 14 feet long.
25	pieces, 1 by 6 inches, 8 feet long.
50	pieces, 1 by 6 inches, 6 feet long.
2,400	feet, common boards, dressed.
1,200	feet, common roof-boards.
685	feet, floor lining, dressed.

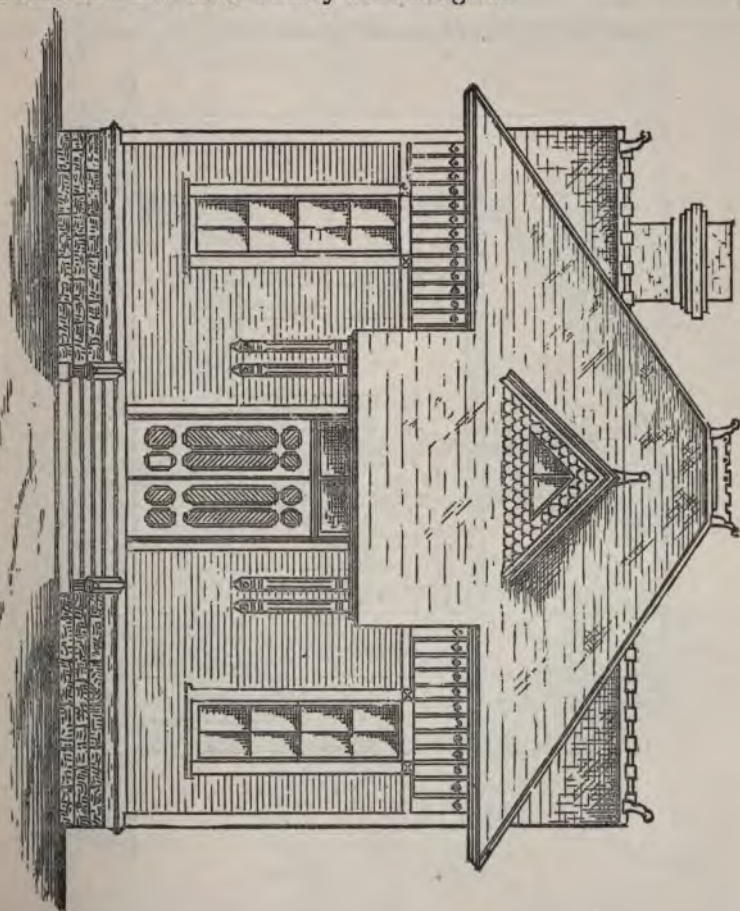
Plans and Specifications.

- 850 feet, flooring, dressed and jointed.
- 1,800 feet, clear siding.
- 650 feet, wainscoting and cornice.
- 800 feet, second clear 1-inch finishing lumber.
- 150 feet, second clear plank for door-jambs, etc.
- 200 feet, lumber for bell tower, assorted.
- 75 feet, 2-inch plank for outside platform.
- 2,400 feet of lath.
- 9,000 shingles for roof and bell tower.
 - 2 outside doors, $1\frac{3}{4}$ inches thick, 3 by 7 feet, 6 panels.
 - 2 inside doors, $1\frac{3}{8}$ inches thick, 2 feet 10 inches by 6 feet 10 inches, 6 panels
 - 2 transom windows, 2 by 3 feet, $1\frac{3}{8}$ inches thick.
 - 6 windows, 4 lights each, glass, 14 by 32 inches.
 - 4 store-door handles, heavy japanned.
 - 2 two tumbler dead locks.
 - 2 foot-scrapers.
 - 1 gross of No. 10 $\frac{1}{2}$ -inch screws.
 - 6 pairs, $3\frac{1}{2}$ by $3\frac{1}{2}$ -inch loose pin butts.
 - 4 dozen of wardrobe-hooks.
 - 6 sash lifts
 - 6 meeting rail locks.
- 200 pounds, eight-penny nails.
- 50 pounds, twenty-penny nails.
- 50 pounds, ten-penny nails.
- 60 pounds, three-penny nails.
- 50 pounds, ten-penny casing-nails.
- 20 pounds, eight-penny casing nails.
- 6 pounds, six-penny casing nails.
- 5 $\frac{1}{2}$ cords of stone.
- 1,350 bricks.
- 40 bushels of lime.
- 200 pounds of white lead.
- 10 gallons of linseed-oil.
- 1 $\frac{1}{2}$ gallons of varnish.

Plans and Specifications.

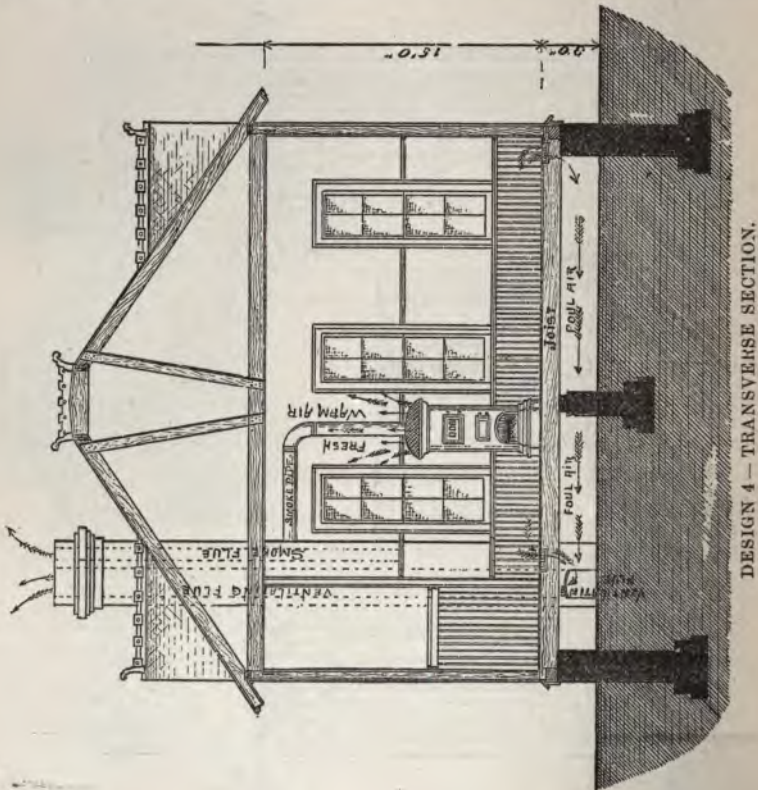
The fourth design of a one-room school-house is furnished by D. R. Jones, architect, Madison, Wis. The building has a solid and attractive appearance, and provides, in its nearly square form, many of the most desirable conveniences for a school. The elevations for the rear end and the sides would show the same style of the main roof as the one presented for the front. While the height of the outside of the house may be retained to preserve the proper proportion in its dimensions, the ceiling of the school room should be placed not over fourteen feet above the floor, for the reasons which have already been assigned.

DESIGN 4—FRONT ELEVATION.



Plans and Specifications.

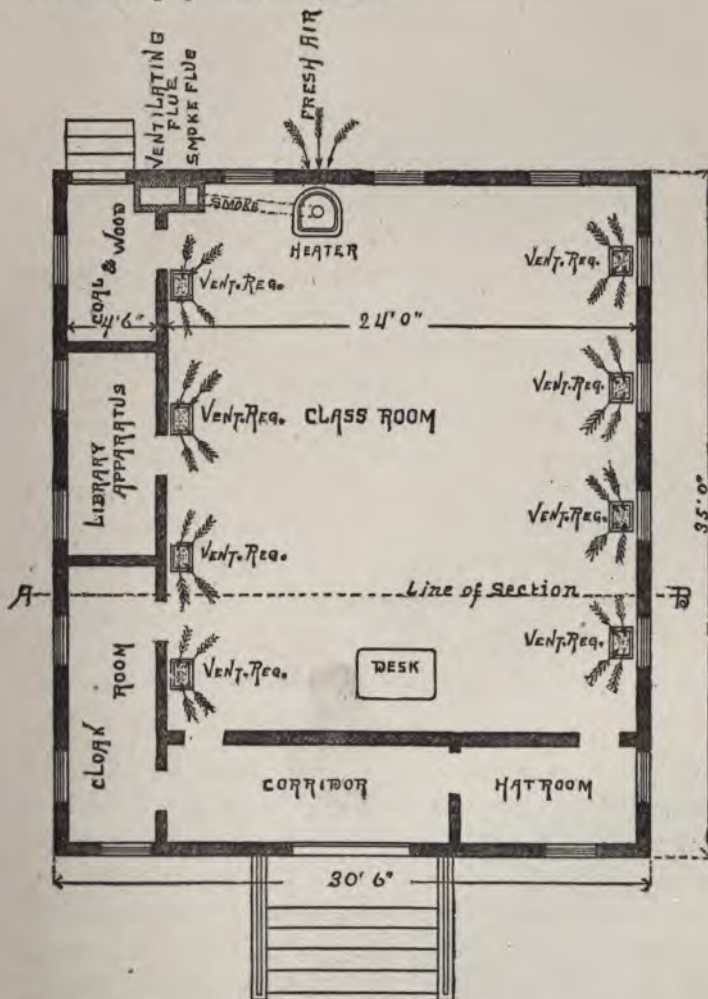
The location of the partitions on the inside was made, in part, for the purpose of supplying light on the left and behind the scholars when seated, and of excluding it from their right. The window surface in the school room is equal to almost one-fourth of the floor area; and, therefore, satisfies the best conditions for lighting a room of the size and shape of the one given. All the small rooms, particularly the wardrobes, are abundantly supplied with light. It can be observed here, as it could under the previous designs for these small school-houses, that the sills of the windows in the school room should be raised a foot to a foot and a half, so as to bring the bottoms of the windows between three



Plans and Specifications.

and a half and four feet above the floor. The advantages of having the tops of the windows within a foot or six inches of the ceiling, should also be considered.

Space for blackboards is provided between the doors and the side of the room not occupied by windows, as well as on the end in front of the pupils at their desks.



Plans and Specifications.

The wood and apparatus rooms, though only $4\frac{1}{2}$ feet wide, one being 8 feet long, and the other 10 feet, are excellent appendages to the school room. The "corridor" and "hat room" are both 5 feet in width, and the former $14\frac{1}{4}$ feet long and the latter 9 feet. The "class room" is 24 by 28 feet in its floor surface, and 15 feet in height. It will accommodate 42 pupils, 6 of whom must be seated at single desks in one row, and the others at double desks in three rows. The floor area, allotted to each pupil, is 16 square feet, and the amount of air space is 240 cubic feet.

The arrangements for heating and ventilation are, in the main, the same as heretofore presented. Careful attention must be given, under this system, in order to secure the necessary currents of air and its speedy removal from the school room, to the construction of this room and the basement under the whole floor that they both will not permit the air to escape through any cracks or crevices in the walls and floor, nor through any openings except those provided for ventilation. The air-chamber under the heater must be built so tightly that none of the foul air forced into the basement can enter it. The apertures of this chamber, whether leading into the heater or through the outside wall to the external air, must each have the area of 420 square inches. This direction is based on the rule that such an opening for the supply of fresh air must have as many as 10 square inches for every pupil attending school.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

General Remarks.

All the lumber used in the building must be well seasoned. The common and framing lumber must be free from large or loose knots, that will impair its strength. Second clear lumber must be free from the same, and from blue sap and splits. Clear lumber must be soft white pine. None of the interior finish will be put on until the last coat of plaster is dry.

For dimensions of building, general style, and construction, etc., see the elevation, section, and plan.

Plans and Specifications.

Since these specifications are made for general use, the exact depth of the foundation walls below the surface of the ground, width of footing course, etc., must be determined by the parties building, and must vary according to the nature of the soil, etc.

The excavated trenches under the foundation walls to be 3 feet deep, and 18 inches wide. After the walls are completed, pack around them on the outside so as to make a slight water-shed all around the building. If the distance of the water-table above ground will be made less than what it shows on the elevation, the soil must be removed from the inclosure of the walls to a depth of one foot below the bottom of the joists, and must be made smooth on top. Remove surplus soil off the premises.

Walls.

Build a foundation wall under the exterior sills all around, as shown in section. It must be built with good stone and mortar all through. Check the tops of the side walls to receive the full width of the joists, as shown in section; and after the timbers are laid, build up behind the sills all around even with the top of the timbers. All crevices in the interior of the walls must be thoroughly built with stone and mortar. The wall facing above ground to be built of "hammer dressed" range work, neatly pointed. Build four piers 3 feet deep in the ground under platform and steps. Set large flat stones embedded in the ground under posts for a central support.

Chimney.

Start the chimney on a foundation of large flat stones, embedded in mortar. Chimney to have two flues, one a smoke-flue 8 by 12 inches inside; and the other, a vent-flue, 8 by 30 inches inside. Set a wall thimble in the smoke-flue about 18 inches below the ceiling, and leave an opening 8 by 30 inches in the front of the vent flue, just under the floor joists. The flues must be built with great care, all joints must be thoroughly filled with mortar. Plaster the flues smooth inside. The brick for topping off the

Plans and Specifications.

chimney outside must be burned hard. Set tin counter-flashings in the brick-work just above the roof, all around the chimney. On the upper side, the tin must be wide enough to reach under two courses of shingles.

Frame.

Sills to be 6 by 6 inches, mortised and tenoned at corners, and mortised for studding and joists, and must be laid perfectly level and embedded in mortar. Joists to be 2 by 12 inches, set 16 inches to centers, with two rows of bridging,—one row to be under the partition running along one side, and the other row half-way between the sill and beam. Run a 6 by 6-inch beam under the center of the joists resting on 6 by 6-inch posts, set every 6 feet apart. Set four layers of tarred paper under each post on the stone.

Studding to be 2 by 6 inches, set 16 inches to centers, and double at corners, and on each side of all door and window openings; and a studding set between, under all plaster on which will be blackboards, making studding under all blackboards 8 inches to centers. Wall-plates to be 2 by 6 inches, double. Ceiling joists to be 2 by 6 inches, set 16 inches to centers; and rafters to be 2 by 6 inches, set 16 inches to centers, with 1 by 6-inch ties, from top of rafters to the ceiling joists, as shown on section. Two ties to each joist to be nailed to the jack-rafters, after passing the hip-rafters. Deck frame to be 2 by 6 inches, double; and deck joists to be 2 by 8 inches, framed with a slope from the center to each end. Raise small gables in front and on two sides, as shown on elevation.

Inclosings.

Sheathe with matched fencing on the outside of the studding all around. Make the cornice, corner-boards, outside casings, water-table, and brackets under the front hood, of second clear lumber, well put together. Water-table $1\frac{3}{8}$ inches thick with a lip, and casings and corner-boards $1\frac{1}{2}$ inches thick. Cornice to be made with a belt frieze, as shown on elevation. All must be

Plans and Specifications.

made water-tight between belt and siding. The projecting part of the cornice to return in front around the hood over the brackets. Cover with building paper on the sheathing all around. The paper must reach under all casings and corner-boards, and overlap at all joints fully two inches. Belt over window-frames to have lip on the upper edge to take the frieze boards.

Cover the outside with first clear siding, laid to overlap each other fully one inch. Cover the rafters with roof-boards, nailed closely together. Shingle with best sawed shingles, laid $4\frac{1}{2}$ inches to the weather. Cover the valleys with tin 14 inches wide, which must be of the best I. C. roofing tin, well locked at the joints and soldered on both sides. Run a light cornice on the gables, and shingle the front with cut shingles, as shown on elevation. Cover the hips and ridges with neat boards, and set crests and finials as shown on elevation. Flash with tin around the gables and chimney. Cover the deck with tin, and run the front of the tin down over the edges of the deck, so as to make all water-tight. Set a tin gutter in front of the hood roof, and a conductor to follow the bracket to the ground. Box around the pipe 5 feet high from the ground. Construct the outside steps of second clear 2-inch plank, made in strips about 3 inches wide, laid about $\frac{1}{8}$ inch apart. All must be well nailed to strong plank carriages underneath. Make the buttresses of narrow matched and beaded wainscoting for the sides, with 1-inch base around the bottom, and the top made of second clear 2-inch plank, as shown on elevation.

Inside Work.

Lay the floor of second clear and matched pine flooring, with registers in the floor, as shown on plan. Registers to be 9 by 12 inches, to have no fans or borders. Smooth over all uneven joints in the floor. After the plaster is all dry, wainscot all around the school room with narrow matched and beaded second clear wainscoting, 2 feet 6 inches high, with a projecting cap on top, and a fillet under the cap. Hollow out the top of the cap

Plans and Specifications.

under blackboard to form crayon trough. Wainscoting must be scribed close to the floor, and a small fillet nailed to the floor close against the wainscoting. Wainscot the four small rooms, also the vestibule, in the same manner, 6 feet high, with cap and fillet on top. Hang all the windows with weights and pulleys, and best hempen sash cord. Set on the meeting rail of each window a Payson's tucker bronze sash lock. Hang inside blinds on the school room windows, to be four-leaf wide and two-leaf high, all up-and-down joints to be rabbeted and beaded, to have rolling slats, and to be hung with light iron blind hinges, and fastened with strong tucker bronze bars. Set in the hat and cloak rooms strong school-house clothes-hooks, two rows all around, hooks to set about 8 inches apart.

Door-jambs to be made of $1\frac{3}{8}$ -inch clear stuff, rabbeted. Set hard wood thresholds under all the doors, and hard wood sills for the outside doors. Case the doors and windows with a $\frac{7}{8}$ by 5-inch molded edge casing, and with a neat band-mold. Hang all doors with $4\frac{1}{2}$ by $4\frac{1}{2}$ -inch japanned pin butts, three butts to each door. Set a strong bronze thumb latch on each door, and a barrel bolt on the inside of the rear door; two bolts on one lap of the front door to be $\frac{5}{8}$ -inch bolts, one at the top and the other at the bottom, with eyelets all complete. Set on the front door a Yale store-door lock with two steel keys. All the doors to be $1\frac{3}{4}$ inches thick, four raised panels to each, except front doors, for plan of which see elevation. Door sash and casings to be of clear lumber. Set two japanned foot-scrapers, one at each end of the lower front steps, and one on the lower rear step. Set a strip of narrow molding on the plaster above the blackboards. Set up some shelves in the Library room, as directed by the building committee. All the above work must be put together in the best manner.

Lathing and Plastering.

Lath all walls and ceilings with partly seasoned lath, nailed about $\frac{1}{2}$ inch apart, breaking joints with alternate strip under all blackboards, and every three strips throughout elsewhere. Lath behind

Plans and Specifications.

all wainscoting clear down to the floor. Plaster all with three coats of plaster. In the school room each of the first two coats of mortar under the blackboards must contain fully one-third, in bulk, of plaster of Paris. The last coat throughout the room to be hard-finished. The walls under the blackboards must be made perfectly smooth and true on the surface, and troweled hard. Do all the repairing required after the other branches of the work are completed. Clean all the rubbish out of the building.

Painting and Glazing.

Paint all the outside and inside wood-work, except the floor and roof shingles, with three coats of paint, mixed with pure white lead and linseed-oil, and with other ingredients to bring the shades of colors to suit the building committee. Putty all nail holes, splits, and open joints. Shellac all knots and sap spots. Furnish and set all the glass, to be of A. A. quality, single thick American sheet, to be embedded in putty, pinned and back-puttied.

Bill of Materials.

- 9 cords of rubble-stone.
- 2,858 brick.
- 31 barrels of lime.
- 48 loads of sand.
- 24 bushels of plastering hair.
- 6 barrels of plaster of Paris.
- 9,700 feet of lath.
- 1 7 or 10-inch wall thimble and cap.
- 315 feet, 3 sills, 6 by 6 inches, 35 feet long.
- 180 feet, 2 sills, 6 by 6 inches, 30 feet long.
- 1 sill, 6 by 6 inches, 12 feet long, for posts under beam.
- 1,600 feet, 50 joists, 2 by 12 inches, 16 feet long.
- 65 feet, strips, 1 by 3 inches, for bridging.
- 3,920 feet, 245 studding, 2 by 6 inches, 16 feet long, for wall-plates and partitions.
- 810 feet, 27 joists, 2 by 6 inches, 30 feet long, for ceiling.

Plans and Specifications.

- 104 feet, 4 pieces, 2 by 6 inches, 28 feet long, for hip-rafters.
- 1,080 feet, 60 pieces, 2 by 6 inches, 18 feet long, for rafters and deck frame.
- 37 feet, 2 pieces, 2 by 8 inches, 16 feet long, for deck joists.
- 55 feet, 6 pieces, 2 by 4 inches, 14 feet long, for gable-rafters.
- 250 feet, 50 pieces, 6-inch fencing, 10 feet long, for ties from rafters to ceiling.
- 2,100 feet, matched fencing, for outside sheathing.
- 1,600 square feet of tarred building paper.
- 1,500 feet, roof-boards.
- 18,000 sawed shingles, the best quality.
- 1,550 feet, first clear siding.
- 1,400 feet, second clear 1-inch boards, dressed, for cornice, frames, etc.
- 160 lineal feet, 4-inch crown-molding.
- 144 lineal feet, 3-inch bed-molding.
- 42 lineal feet, 2-inch crown-molding for small gables.
- 320 feet, 2-inch second clear plank, for steps, buttresses, window-sills, etc.
- 200 feet, 1½-inch second clear plank, for water-table, window-stools, and crayon trough.
- 300 feet, 1¼-inch second clear plank, for corner-boards, outside casings, etc.
- 1,050 feet, second clear matched flooring.
- 1,360 feet, narrow matched and beaded second clear wainscoting.
- 200 feet, first clear 1½-inch plank, for door-jambs.
- 350 feet, first clear 1-inch boards, dressed, for inside finish.
- 450 lineal feet of band-molding.
- 36 lineal feet of narrow molding, over blackboards.
- 4 brackets, under front hood, clear plank.
- 15 pairs of sash for windows, 1½ inches thick, 8 lights, 14 by 26 inches, and check-rail.
- 7 pairs of inside blinds for the above in school rooms.

Plans and Specifications.

- 8 pairs of paneled doors, 2 feet 10 inches by 8 feet, $1\frac{3}{4}$ inches thick.
- 2 front doors, six-paneled, 2 feet 8 inches by 8 feet, $1\frac{3}{4}$ inches thick, panels of diagonal wainscoting.
- 1 transom sash, 4 by 5 feet 4 inches outside.
- 2 oak door-sills, one 10 inches by 6 feet 6 inches, 2 inches thick; and one 10 inches by 3 feet 10 inches, 2 inches thick.
- 8 hard wood thresholds, $\frac{1}{2}$ by 6 inches, and 3 feet long.
- 1 tin gutter, 12 feet long, 14 inches wide.
- 1 3-inch conductor, 18 feet long.
- 6 valleys, 14 inches wide, 14 feet long.
- 1 tin deck, 5 by 9 feet.
- 18 feet of tin flashings.
- 140 clothes-hooks.
- 2 japanned foot-scrapers.
- 9 registers, 9 by 12 inches.
- 1 register, 16 by 20 inches.
- 60 stile pulleys, with screws.
- 60 sash cast-iron weights.
- 420 feet, hempen sash cord.
- 15 Payson's sash locks.
- 28 pairs, 2 by $2\frac{1}{4}$ inches, narrow iron blind butts, with screws.
- 28 pairs, $1\frac{1}{4}$ by $2\frac{1}{4}$ inches, flap iron blind butts, with screws.
- 14 tucker bronze shutter bars.
- 15 pairs, $4\frac{1}{2}$ by $4\frac{1}{2}$ inches, japanned pin butts, with screws.
- 9 strong bronze door thumb latches.
- 1 $\frac{3}{8}$ -inch barrel bolt.
- 2 $\frac{3}{8}$ -inch flush bolts, iron face and knob, with screws.
- 1 Yale store-door lock, with two steel keys.
- 1 keg, three-penny lath nails.
- 1 keg, four-penny shingle nails.
- 3 kegs, ten-penny nails.
- 1 keg, eight-penny casing nails.

Plans and Specifications.

- 1 keg, spikes.
- 50 pounds of putty.
- 2 lights of glass, 30 by 44 inches, A. A., single thickness.
- 120 lights of glass, 14 by 26 inches, A. A., single thickness.
- 100 pounds of white lead.
- 53 gallons of linseed-oil.

The fifth design of a one-room building was prepared by H. C. Koch & Co., architects, of Milwaukee. It is for a unique and yet



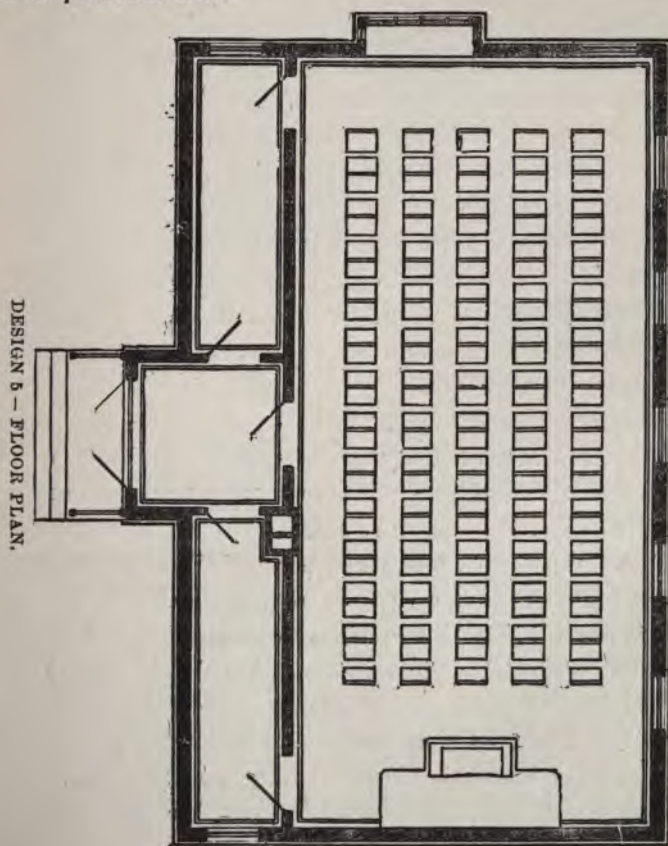
DESIGN 5 — PERSPECTIVE VIEW.

Plans and Specifications.

modest country school-house. It can be selected by district boards who wish to build such a house with the entrance on the south side, and with the longer axis of the school room running east and west. The main light, in that case, would be supplied from the north. The porch in front will be a special convenience to the school.

This design is for a frame building, the gables finished to imitate timber-work. The frame should be sheathed with matched fencing, and then covered with shingles, as indicated in the perspective; or it may be finished with siding in the usual way.

The roofs are all shingled. The cornices and all outside finish must be plain and neat.



Plans and Specifications.

The building is 45 by 27 feet on the ground, and furnishes wardrobes separate for girls and boys, and situated on the right and left of the vestibule. The latter has the floor surface of 8 by 8 feet; and each of the former, $17\frac{1}{2}$ by 5 feet. The school room measures 43 by 20 feet at the bottom, and should be 14 feet high to the ceiling. It will accommodate 65 pupils seated at single desks. The blackboards can be prepared on the walls in front and to the right of the school.

The smoke-flue in the chimney should have the sectional area of 8 by 18 inches; and the ventilating flue, at least 12 by 18 inches.

The directions for drainage, foundation walls, cellar, plastering, wainscoting, floor, teacher's platform, heating, and ventilation, will be found in the description of these subjects under the ninth design, for a one-story and three-room school building. An exception in reference to the use of a furnace should be made. The school room heater, with its accompanying arrangements for ventilation, can advantageously be substituted for it in this house.

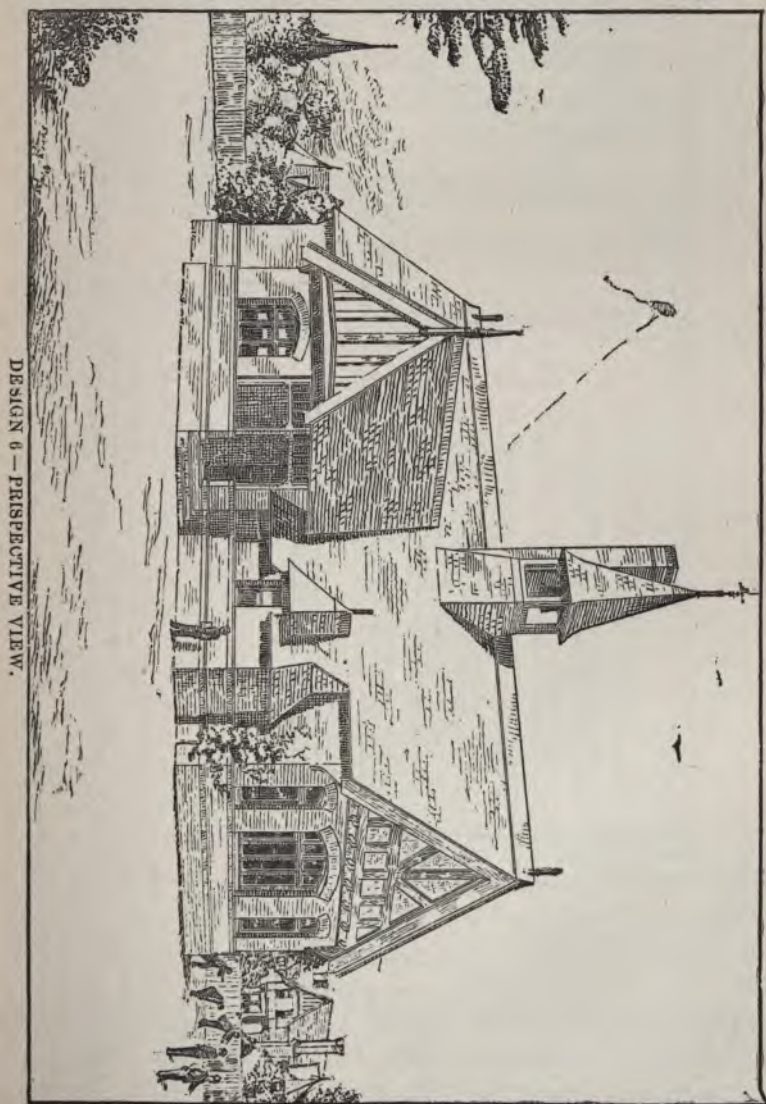
2. *Two-room School-houses.*—These are designed principally for the larger villages and for wards in the smaller cities, in which about 150 children attend the school, usually in the primary and intermediate departments.

The sixth design in number and the first of this class, was prepared by H. C. Koch & Co., architects, of Milwaukee. It is for a brick building, with frame gables to imitate timber-work, having panels finished with shingles or common siding. Its entire length is 82 feet. It has only one story, and provides for the girls and boys separate wardrobes, each 5 feet in width. It has also a teacher's room, 12 by 16 feet in size, which can also be used for the recitation of classes when desired. The larger school room is 25 by 43 feet at the floor, and accommodates 84 pupils; and the smaller one, 25 by 34 feet, and accommodates 60 pupils. The height of these rooms should be 14 feet, to increase somewhat the air space, which, with the floor surface, in this design as well as in

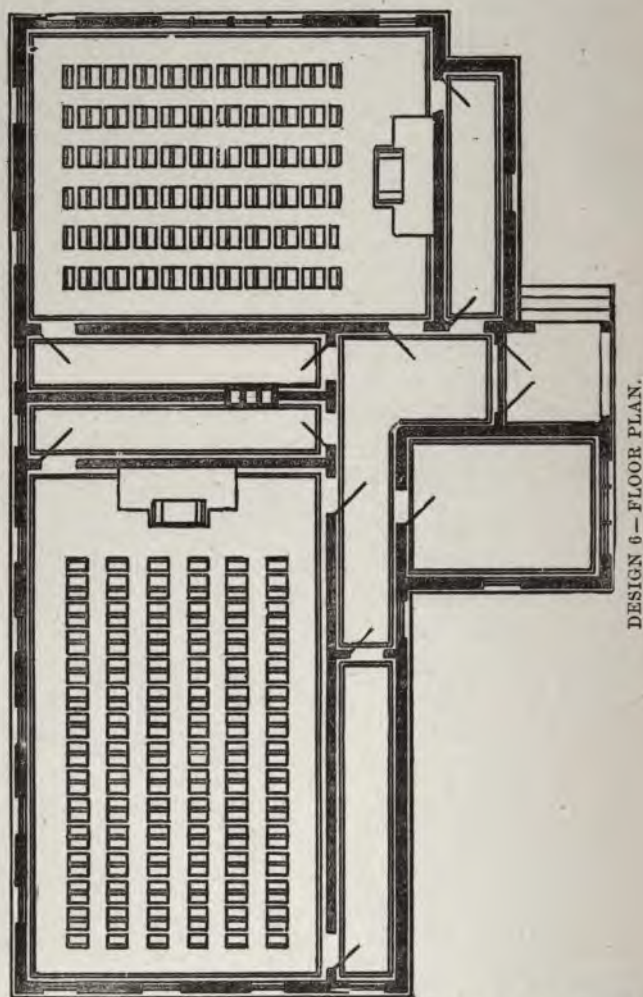
Plans and Specifications.

the previous one, is not quite sufficient, even if only small children should occupy the seats furnished.

For the construction of the foundation and the cellar, and for inside finish throughout, see description under the ninth design.



Plans and Specifications.



The seventh design is furnished by H. C. Koch & Co., of Milwaukee; and consists of a plain and yet beautiful frame building, two stories in height, with one school room in each story. It is here presented to meet the preferences of the people in many small villages for a two-story school-house. But all things considered, a one-story building supplies, as before stated, the greatest number of conveniences for a school.

Plans and Specifications.

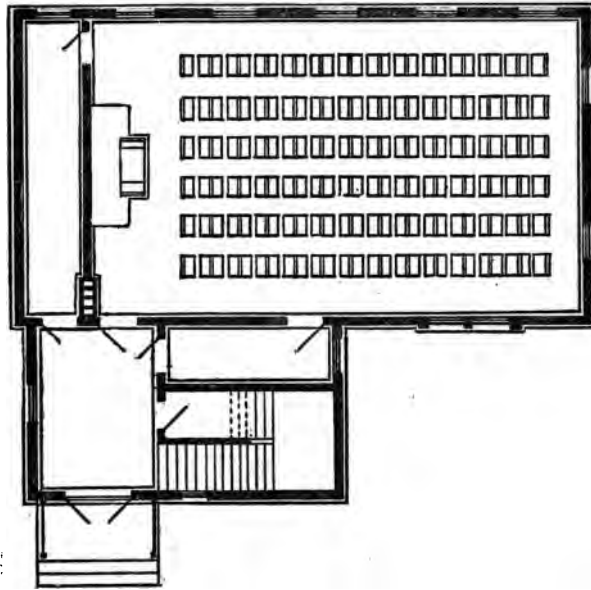
The outside of this design is in imitation of timber-work. The panels of the lower part are finished with siding, and those of the upper part are shingled.

In each story separate wardrobes open from the vestibule, and form an entrance into the school room. The principal portion of the house is 48 by $26\frac{1}{2}$ feet at the base; and the wing is $26\frac{1}{2}$ by $14\frac{1}{2}$ feet. Seating is provided in each school room for 78 pupils. The wardrobes are each 5 feet in width, and the vestibule is 14 by



Plans and Specifications.

10 feet at the floor. The height of each story between joists should be at least 13 feet.



DESIGN 7—FIRST AND SECOND FLOOR PLAN.

See description under the ninth design, for construction of the foundation and cellar, and for the inside finish throughout.

3. *Three-room School-houses.* It is very desirable in some of the villages of the State to erect such houses, arranged for only three departments of a school and one school room for each department. A recitation room should often be added to accommodate some extra classes from the highest department, which may embrace both grammar and high school pupils. The two succeeding designs meet this demand.

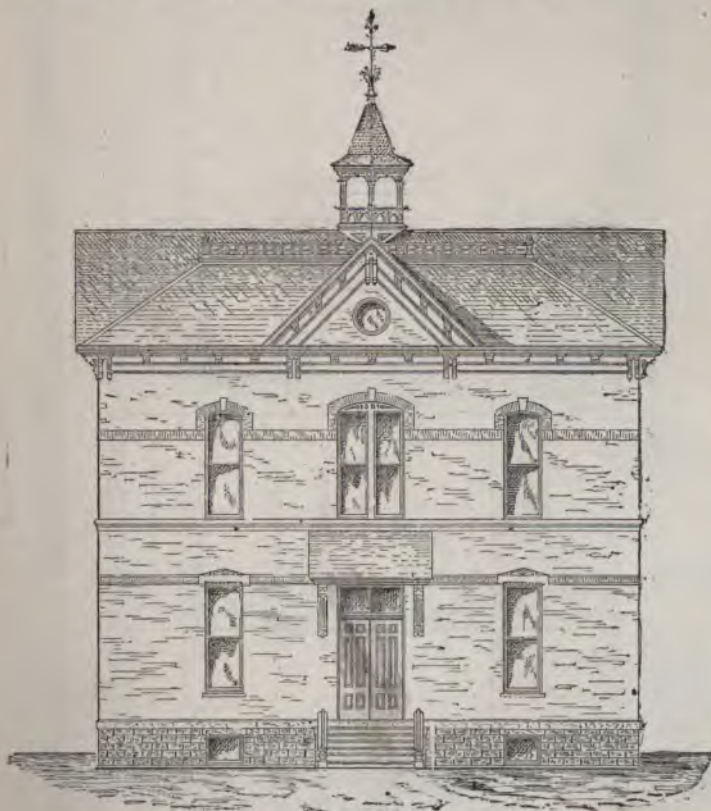
The eighth design was prepared by D. R. Jones, architect, of Madison, and presents a very neat looking and substantial building, two stories in height.

The specifications require that the outside walls above the foundations should be built of brick. The size of the house will

Plans and Specifications.

permit the erection of a balloon-frame, covered with brick in a single thickness. It would not impair the appearance of the building to make each story only 14 feet high instead of 15 feet, as shown in the section. The front elevation exhibits the shape of the roof, as also seen from the rear end and either of the sides.

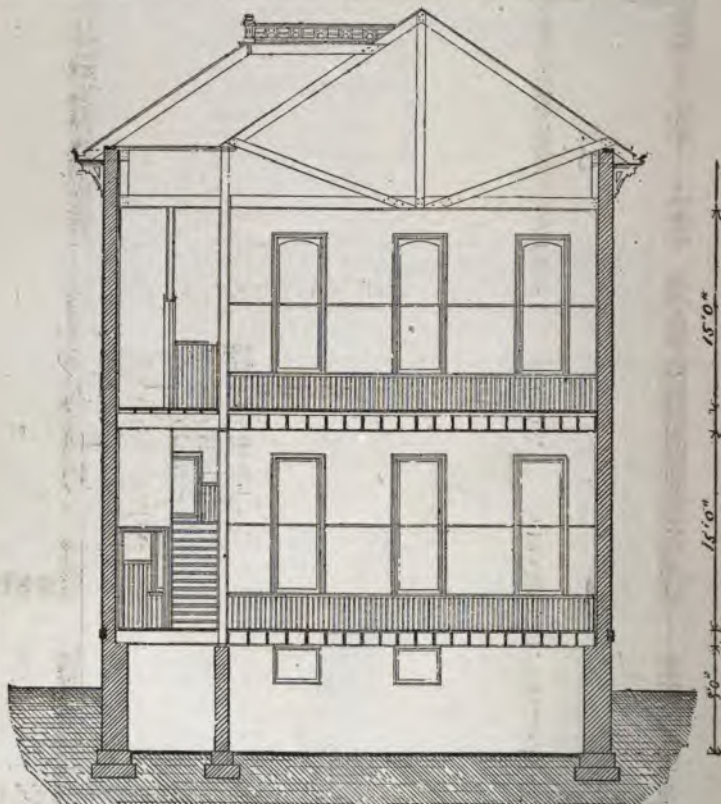
The basement plan indicates that the school and recitation rooms can all be warmed sufficiently by one furnace. This is the case when it is large enough to supply fully 2,000 cubic feet of fresh air per minute, and it is situated in the position as shown. The flues leading from it into the school rooms are straight and vertical;



DESIGN 8—FRONT ELEVATION.

Plans and Specifications.

but the heated air for the recitation room on the second floor is driven through a horizontal pipe which terminates in a small flue in the outside wall, opening above into this room. The closest attention must be given to the construction of the foul-air ducts, connecting the different rooms with the ventilating shaft. If all these have the capacity to supply the school rooms and to carry away from them the air furnished per minute from the furnace, a complete change of this air would take place in one-third of an hour; and every pupil in all the rooms would be provided each minute with 12.9 cubic feet of pure warm air.



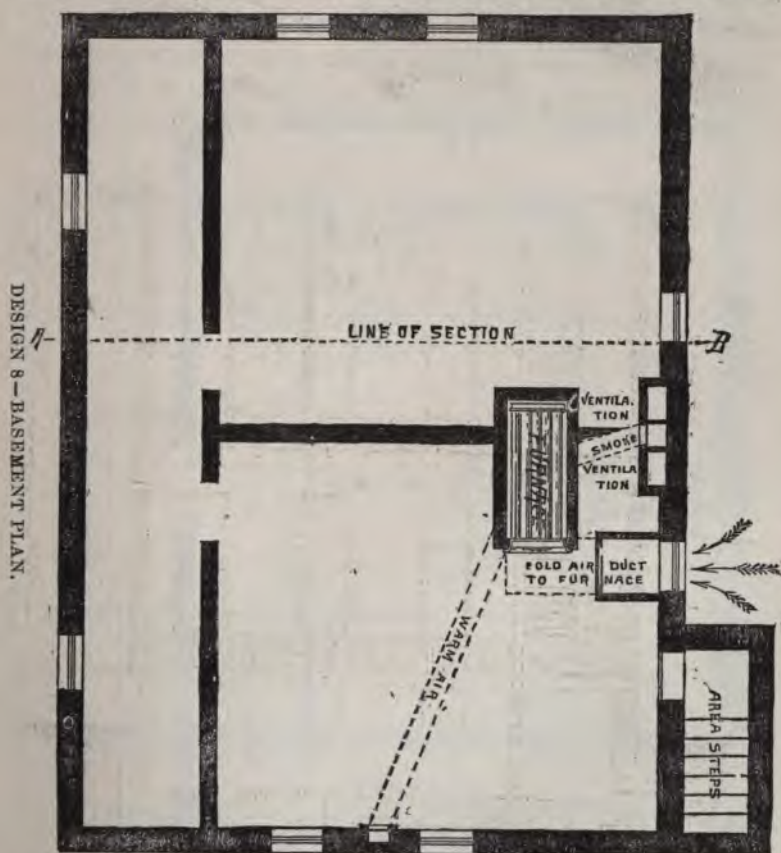
DESIGN 8 — TRANSVERSE SECTION.



Plans and Specifications.

The floor surface of each of the lower school rooms is 660 square feet, and will accommodate 42 pupils, giving 15.7 such feet to every pupil, and also 238 cubic feet of air space. The large room in the second story will seat 70 pupils, and furnish for every pupil a greater number of both these square and cubic feet.

In all the rooms occupied by the school for study, including the recitation room, ample space is provided for blackboards on the walls in which there are no windows. The best position for the teacher's platform in the left-hand "class room" on the first floor, is between the entrance doors,—the same as in the other



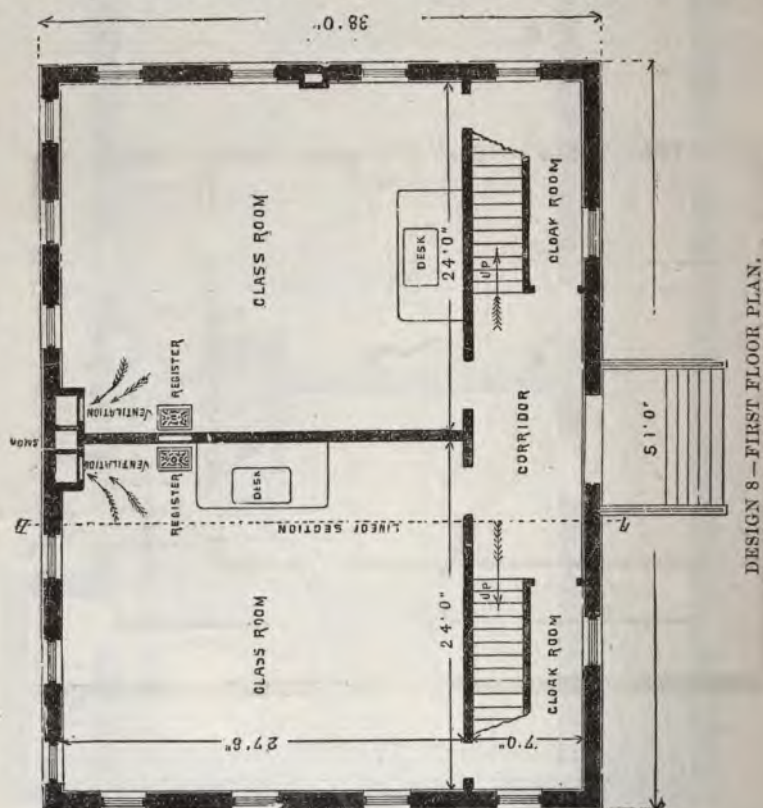
Plans and Specifications.

"class room." This requires, of course, a portion of the light from the windows to fall over the right shoulders of the children in their seats. On the whole, less inconvenience will be experienced from this arrangement than from having the platform situated near the hot-air register of the room.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

General Remarks.

Whatever work is shown by the plans or included in these specifications or fairly implied by either or both, is to be considered as part of the work to be performed by the contractor. The

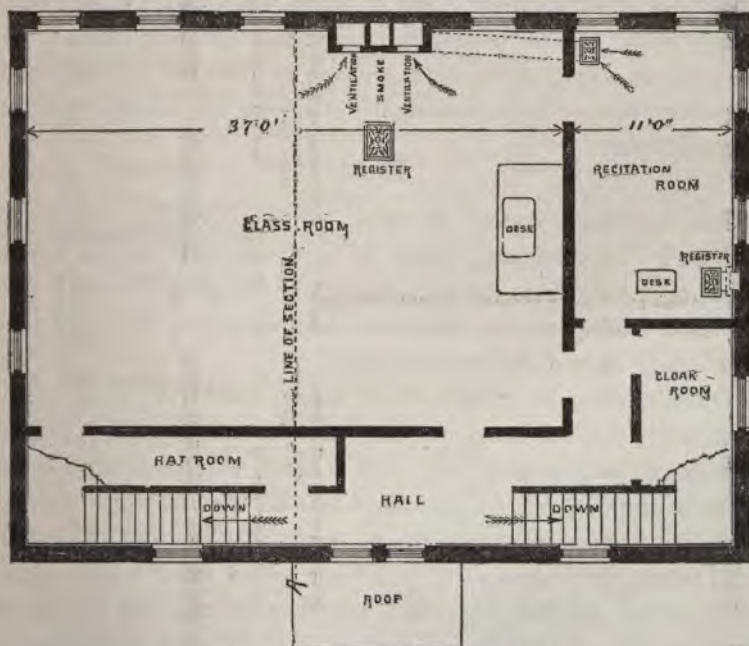


Plans and Specifications.

contractor or a competent foreman is expected to be on the work during all working hours in order to secure a faithful carrying out of the plans and specifications.

For the general style of the building, position of doors and windows, height of stories, etc., see plans, section, and elevation. Where distances are given in figures, follow the figures instead of scaling small plans.

All the materials used in the construction of the building must be the best of the grade specified. The framing lumber must be free from large or loose knots and rot. Second clear lumber must be free from large or loose knots, rot, splits, and blue sap. All lumber must be well seasoned, and the inside finishing lumber thoroughly kiln-dried.



DESIGN 8—SECOND FLOOR PLAN.

Plans and Specifications.

Mason Work.

Excavate a basement under the whole building, 8 feet deep in the clear. The amount of filling and grading (if any) and the height from the graded line to the under side of the water-table must be determined by the building committee. Excavation must be six inches larger all around than the outside measurements of the basement walls; and after the walls shall have become dry, refill the 6-inch space with sand or gravel (if it can be easily procured), well packed in. Excavate under the side wall adjacent to the window used for cold air, 3 feet below the basement floor. Excavate cold-air duct, and the area around cellar doorway, one foot below the basement floor. Excavate pits under the front platform and under the front of the steps, and a trench under the footing course 2 feet 6 inches wide and 8 inches deep. If any filling will be necessary around the building, deposit the soil in a manner that will form a grade as directed by the building committee or superintendent. Remove all surplus soil off the premises.

Walls.

Lay a footing course of large stones extending across the trenches. Said footing course to be embedded in thin mortar grouting, poured into the trenches before the stones are laid. Lay a similar footing course, 16 inches wide, under all the brick partition walls shown on basement plan.

Outside basement walls to be of stone, built true to a line on both faces, and the interior of the wall thoroughly filled, first by supplying the crevices well with mortar, and then embedding stone in the mortar. In no case will it be allowed to fill crevices with dry stone-chips, and slush mortar over the top. Make the wall-facing above ground of rock-faced range work, with pitched edges neatly pointed with white mortar. Cut the corners, jambs, caps, and sills smooth dove work so as to fit close to the frames.

Point the rubble walls smooth outside and inside. Build the brick partition walls as shown on the plans, to be 8 inches thick.

Plans and Specifications.

Turn flat arches over lintels, which are over all door and window openings. Build all the basement walls up even with the tops of the first floor joists. Build a chimney of three flues. The center one to be a smoke-flue 16 by 12 inches, and the side ones to be 16 by 36 inches each. All must be well built, all joints carefully filled with mortar, and each flue plastered smooth inside. Leave an opening in each vent-flue, near the floor of each story, to receive a register 20 by 20 inches. Set thimble in the smoke-flue in the basement for the furnace smoke-pipe. Build a cold-air duct under the basement floor to be laid with 4-inch brick walls on the sides, and 4-inch brick arch on top, with two inches of concrete on bottom. The duct to have the capacity of 1,200 square inches inside, and made to extend under the center of the furnace. Top off the brick arch, to be 2 inches below the basement floor.

The window admitting cold air into the duct, must be made fully the capacity of the duct. If the ground at that point is too high to permit a window of that size above ground, there must be an area built around the window, with a cut stone coping on top. Build area walls of cellar stairway, as shown on the plan, with cut stone coping on top. Build piers of stone in the ground and of brick above ground, under the front of the platform at main entrance, and under the front of the steps.

Cut Stone.

In addition to the cut stone mentioned for the basement, there will be a cut stone water-table all around, cut stone window and door-sills, cut stone caps for the doors, but not for the windows of the first story, cut stone keys for the windows of the second story, and a cut stone sill course all around under the second story windows. The kind of stone to be used, must be selected by the building committee. For the design, see elevation. The stone must be cut true and smooth, and must be set with small neat joints.

Plans and Specifications.

Brick-work.

The outside walls above the water-table to be built of brick. The color must be determined by the building committee. Walls to be 12 inches thick, with binders at every seventh course in the face. The binders must be blind so as to show stretchers all along on the face. All the face brick must be burned hard, must be of uniform color and size, and laid true with small straight joints, neatly struck. All the end as well as the bed and side joints must be thoroughly filled with mortar, so as to fill up all the crevices between the brick. The belt courses are to be made of brick standing up and down, and set diagonally with the corners outwards. All such belts and arches over the second story windows must be set perfectly true, and the outlines of the arches turned regularly, and the brick cut so that the mortar joints be kept the same size all along the joint. Brick-work to continue up behind the frieze to the top of the lookout brackets. Lay in the inner course of brick $\frac{1}{2}$ by 3-inch wall strips, every 2 feet apart in both stories, to be laid in dry between the brick, but well filled with mortar behind. After the brick-work is finished, slush mortar into the joints between the window and door-frames and brick all around, so as to be air-tight.

Build a hot-air flue in the end wall, to conduct heat into the recitation room, as shown on plans, with an opening for a 10 by 16-inch register in said room, just above the floor. Shut off the flue just above the register, and leave a two-inch air space between said flue and the outer course of brick. Plaster this flue smooth inside. Do all the brick-work necessary around the furnace, as directed by the heating engineer, including cutting for heat pipes in the brick partition walls.

Carpenter Work.

Joists of first and second floors to be 3 by 14 inches, set 16 inches to centers, with two rows of bridging to each tier of joists. The short joists from the wall across the corridors to the partition can be made of those 2 by 12 inches. If preferable, the first floor

Plans and Specifications.

joists under the school rooms can be 2 by 12 inches, with beams and posts in the basement for central supports. Joists must be dressed to an uniform size and shape. Frame double trimmers and headers at stairways. Partitions of first and second floors to be made of studding 2 by 6 inches, set 12 inches to centers, and one tier of cross-bridging in the center. Studding of second floor partitions, where possible, must reach down to the plate on first floor partitions. Ceiling joists to be 2 by 8 inches, set 20 inches to centers. Cross-fur under ceilings of both stories with $\frac{7}{8}$ by $1\frac{1}{2}$ -inch milled strips, set 12 inches to centers. Rafters to be 2 by 6 inches, set 20 inches to centers, with a 1 by 6-inch tie from the foot of each rafter to the ceiling joists, as shown on section. Deck joists to be 2 by 8 inches, set 20 inches to centers, and set sloping 1 inch to each foot. Wall-plates to be 2 by 10 inches, set double with joists overlapping. Lookout brackets to be 2 by 8 inches, set 20 inches to centers, with gutter cradles formed in the brackets. All the outside walls to be furred with $1\frac{1}{4}$ by 2-inch furring strips, set 16 inches to centers, with an extra one between under blackboards. All set perfectly plumb and straight on the face, and spiked firmly to the wall strips every two feet apart. The furring strips must extend up between the second floor joists so that lath and plaster can continue up unbroken between the second floor joists. Anchor the second floor and ceiling joists to the walls every seven feet apart on side and end of joists. Anchors to be made T-heads, 2 feet 6 inches long, of 5-16ths by $1\frac{1}{2}$ inch iron, well spiked to the joists.

Frame the gutter cradles so as to have an even slope to convey the water to four leaders, two at the rear corners and two at the front corners. Line the cradles with milled lumber and cover with one cross lead plate roofing tin. The gutters must reach up under the second course of shingles, and over the front of the crown-molding, and nailed on the front with tinned nails at short intervals, to have locked joints soldered on both sides. Gutters and valleys to have locked joints, soldered on both sides. Valleys to

Plans and Specifications.

be 20 inches wide. Tin the deck with the same kind of tin, which must run up under the shingles so as to be water-tight. Cover the whole roof with roof-boards nailed close together; those under the deck must be dressed. Shingle the sloping parts of the roof with the best quality of seasoned sawed shingles, laid $4\frac{1}{2}$ inches to the weather.

Finish the ridges and hips with neat ridge-boards, and around the deck with a nosing and fillet. The tin must turn over the nosing and be nailed on the front. Set a low balustrade on the deck, as shown on elevation. Construct the belfry, which must be made perfectly water-tight around its base with tin flashings. Cover the bell deck with tin, so as to discharge all the water on the main roof. Shingle the roof as shown, partly with cut shingles. Set a finial on top, made of wrought iron, with a revolving weather-vane. Flash with tin around the chimney, so as to make all water-tight. Set four 4-inch leaders, of one cross tin, from the gutters to the ground, and with shoots at the ground. Box the leaders with plank 5 feet from the ground,—the leaders to be fastened within two inches of the walls with strong iron hooks. Construct the main cornice of second clear lumber, well put together, and with a double frieze, as shown on elevation.

Tin the cornice shelves across the gables and flash into the brick. Make a hood over the front door, resting on two brackets, anchored fast to the wall. Shingle the roof with best sawed shingles, and set a tin gutter in the roof with a 2-inch leader to follow the bracket, and down to the ground, with a shoot at the ground. Sheathe under the rafters of the hood with narrow matched and beaded wainscoting. Make a platform at the front entrance. The floor to be of narrow jointed clear flooring. Make the steps of pine 2 by 4 inches, dressed and laid about $\frac{1}{8}$ inch apart; all to be supported by strong plank carriages. Buttresses to be made of narrow matched and beaded wainscoting, a base around the bottom and a cap on top of 2-inch plank; all to be made of good second clear lumber. Set strong japanned foot-

Plans and Specifications.

scrapers one on each end of the lowest step. The platform to be put together in white lead, and the surface smoothed over.

Construct a set of 2-inch dressed plank steps for the basement door area, to be made on carriages independent of the walls. Flash with tin into the wall at the top of the hood roof, and tin over the projecting shelf of the main cornice at the gables, flashing all into the wall.

Frames.

Window-frames of the two principal floors to be made boxed for $1\frac{3}{4}$ inch check-rail sash, to have large turned pulleys and pockets. Sash to be hung with cast-iron weights and Silver-lake sash cord.

Door-frames for the outside to be made of 2-inch clear plank, rabbeted and molded the same as for window frames. Basement window-frames to be plank, and sash hung in a rabbet with common butts and fastened by a small barrel bolt. Bull's-eye windows to be made of plank and the sash fastened between stops.

Inside Work.

The two principal floors to be laid of narrow matched maple flooring, with tight joints and smoothed off at any uneven joints or rough surfaces. Set $\frac{7}{8}$ by $1\frac{1}{2}$ -inch milled grounds under all casings and wainscoting. There must be three such strips under the wainscoting in the halls, corridors, stairways, and clothes-rooms, and two under the wainscoting of the school rooms. None of the interior finish will be put up until the last coat of plaster is dry. Interior door-frames to be made of $1\frac{3}{8}$ -inch clear plank, rabbeted for doors, hung with single acting butts, with solid blocks set behind opposite the butts. Wainscot all around the school rooms with narrow clear matched and beaded wainscoting, about 2 feet 4 inches high. Set a wide cap hollowed on the top under the blackboards for crayon trough, cap to be supported by a cove underneath. Nail a small fillet on the floor along the wainscoting. Wainscot the halls, corridors, and stairways 5 feet

Plans and Specifications.

high, and the clothes-rooms 6 feet high, all set up in the same manner, except the cap which will be sloping on top of the latter. Where the wainscoting on the stairways passes over windows, it must be dressed and beaded on both sides with projecting cap and fillet on both sides.

Leave openings for hot-air and vent-registers where shown on plans; and see that under the former registers the wood is kept fully 2 inches away from the hot-air pipes, where single; and from the registers, reaching only under the register frames. Build platforms in the school rooms, to be 7 inches high, and floored same as the other parts of the floors. Finish in front with rises, nosing, and fillet. Build two sets of platform stairs from the front hall to the second floor. All must be made strong, having plank carriages for support. Wainscoting to reach down along side of the carriages, and nailed onto the carriages, and a skirting-board scribed to the steps and risers, and nailed onto the wainscoting. Risers to be $1\frac{1}{8}$ inches, and of pine, and steps $1\frac{3}{8}$ inches, and of oak, with a scotia under the nosing. Platforms to be floored with maple. Make a basement stair from one of the clothes-closets, running under the other stairs to the basement, with a door at the top.

Make a scuttle over the front hall in the ceiling, opening into the attic, with a neat frame and cover on the opening.

Hang the outside doors and all the clothes-rooms doors with double acting spring hinges, and all other doors with japanned pin butts, three butts to each door. All butts must be large enough to permit the doors to swing back against the walls; and all the double acting spring hinges of ample strength to keep the doors always closed.

Set on one leaf of the front doors $\frac{5}{8}$ -inch bolts with a knob, one at top 24 inches long, and one 12 inches at the bottom, with eye-lets all complete.

Set on the other leaf of front door a Yale lock, with two steel keys. Set strong brass handles, two on each door, hung with

Plans and Specifications.

double acting hinges. On single acting doors set strong mortise-latches, brass face and bolts, and solid brass knobs, $\frac{3}{8}$ -inch barrel bolt on basement door.

Set hard wood thresholds under all interior doors, and turned door stops in the wainscoting behind the doors. Front doors to be made six raised panels, all interior doors to be made four raised panels, and all made $1\frac{1}{4}$ inches thick. Set in all clothes-rooms two rows of strong "school-house clothes-hooks," about eight inches apart.

In forming angles to receive lath, the furring or studding must be spiked together to make a solid angle. This is important and must be done thoroughly in all angles.

Hang inside blinds on all the windows of the two principal floors, to be two-leaf high and four-leaf wide, with all up-and-down joints rabbetted and beaded. Hang with light blind iron butts, and fasten with strong tucker bronze shutter bars. Set on the meeting rails of all sash Payson's patent tucker bronze sash locks.

Construct in the basement a cold-air chamber over the cold-air duct, to be made air-tight, of matched flooring, with a sash in front of the same size as the outside window-sash. Both sashes to be hung by butts, and have a bolt that can fasten them closed or open or at any angle intermediate. The top of the chamber to be covered over.

Nail moldings on the walls above blackboards.

Hang a bell in the front hall on the partition, to be 4-inch gong, and bell metal; and connect to a bronze bell-pull at the front door by means of a copper wire.

Do all the framing and cutting required by the heating engineer in setting the registers, heat pipes, etc.

Case all doors and windows with $\frac{7}{8}$ by 6-inch stuff and neat band-molding. Finish window casings on stools and aprons. All inside finish to be first clear lumber. Hang basement sash with common butts, and fasten with bolts.

Plans and Specifications.

Lathing and Plastering.

Lath and plaster all walls and ceiling of the two principal floors, with three coats of plaster and hard-finish. Lath clear down to the floor behind all wainscoting and stairs, and up between the second floor joists. Lath must be partly seasoned, and nailed $\frac{1}{2}$ inch apart with joints broken every three strips generally, and alternate strips under blackboards.

The mortar must be made of fresh lime, well slacked, and of clean sharp sand. The mortar, forming the first two coats under the blackboards, must have one-third plaster of Paris and two-thirds lime mortar. The finishing coat must be put on with great care, and the face must be troweled hard and smooth. Do all the necessary patching after the other parts of the work are finished. No fire cracks or blisters will be allowed in any part of the work. Clean all the rubbish out of the building.

Use galvanized iron lath over the heat pipes in the partitions, breaking joints with other lath on different studding.

Painting and Glazing.

Paint all the outside wood and metal work, including the shingles on the belfry, with three coats of paint. Priming coat on tin to be of mineral paint, and all other paints to be mixed of pure white lead and linseed-oil, with other ingredients to bring the shade of colors to suit the building committee. Finish the floors and stair steps with two coats of boiled linseed-oil, well rubbed in. Finish all the interior wood-work with three coats of shellac, well put on. All nail holes, cracks, and open joints throughout the work must be puttied; rough surfaces sand-papered; and all sap-wood shellaced over. Glaze all the windows and transoms of the principal floors with single thick American sheet glass, A. A. quality. All other glass to be common sheet. Embed all glass in putty, pin and back-putty in the best manner, and clean all the putty off the glass.

In making blackboards, see specifications for the same in those of the other school-houses.

Plans and Specifications.

Heating.

Set in the brick-work in the basement a furnace, the size and kind to be determined by the building committee. Set in the partitions double tin pipes—the outer pipes to be 5 by 18 inches, and the inner, $4\frac{1}{2}$ by $17\frac{1}{2}$ inches, with lugs to keep them apart all around at each point. Make a register box at the top for 14 by 18-inch register, and a pipe collar at the bottom for 14-inch pipes. Furnish and set a 12 by 17-inch register for the recitation room, and a 12-inch hot-air pipe from furnace to the flue. Furnish and set two 16 by 20-inch registers for the rooms on the first floor, and 16-inch pipes to connect them with the furnace. All the pipes to be made of one cross bright tin. Furnish and set all the vent-registers in the vent-flues with a tin necking to reach through the brick-work. Set well-fitting dampers in all the heat pipes near the furnace. Furnish and set galvanized iron smoke-pipe, No. 24 iron, with a cooling damper in the pipe. Furnish all the collars, elbows, thimbles, covers, and bars, and *all* such fixtures required to set the furnace in the best manner.

Bill of Materials.

- | | |
|-----|--|
| 17 | cords of rubble-stone. |
| 66 | yards of ashlar, average 5 inches thick. |
| 1 | cellar door-sill, 4 feet long, 22 inches wide, and 6 inches thick. |
| 1 | main floor door-sill, 6 feet 10 inches long, 18 inches wide, and 8 inches thick. |
| 24 | window-sills, 3 feet 10 inches long, 5 inches thick, and 9 inches wide. |
| 174 | lineal feet of water-table, 8 inches thick. |
| 180 | lineal feet of sill course, 8 inches thick. |
| 28 | lineal feet of wall coping, 4 by 10 inches. |
| 8 | cellar window-caps, 8 inches wide, 4 feet long, 6 inches thick. |

Plans and Specifications.

- 1 cellar door-cap, 10 inches wide, 5 feet long, 6 inches thick.
- 1 front door-cap, 7 feet long, and same cut as window-caps.
- 16 window-caps, as per elevation.
- 15 key-stones, for second story.
- 134,200 brick, one-third to be hard facing brick.
- 30,000 feet of lath.
- 478 bushels of lime.
- 140 loads (one yard per load) of sand.
- 10 barrels of plaster of Paris.
- 78 bushels of plastering hair.
- 8,190 feet, 90 joists, 3 by 14 inches, 26 feet long, for two main floors.
- 1,440 feet, 40 joists, 2 by 12 inches, 18 feet long, to be cut into two parts, for halls.
- 858 feet, 23 joists, 2 by 8 inches, 28 feet long, for ceiling.
- 261 feet, 9 joists, 2 by 8 inches, 22 feet long, for ceiling.
- 216 feet, 9 joists, 2 by 8 inches, 16 feet long, for ceiling.
- 288 feet, 12 joists, 2 by 8 inches, 18 feet long, for ceiling.
- 700 feet, $1\frac{1}{2}$ by $\frac{7}{8}$ -inch milled cross-furring and grounds.
- 1,200 feet, $1\frac{1}{2}$ by 2-inch wall furring strips.
- 650 feet, $\frac{1}{2}$ by 3-inch wall strips, to be built in the walls.
- 3,520 feet, 220 pieces, 2 by 6 inches, 16 feet long, for partitions.
- 214 feet, 20 pieces, 2 by 4-inches, 16 feet long, for partitions in stairways.
- 500 feet, 1 by 3-inch strips, for bridging floors and partitions.
- 550 feet, 2 by 10-inch strips, for wall-plates.
- 1,400 feet, 70 pieces, 2 by 6 inches, 20 feet long.
- 1,136 feet, 71 pieces, 2 by 8 inches, 12 feet long, for deck joists and lookout brackets.
- 470 feet, narrow matched maple flooring.
- 640 feet, 6-inch fencing.
- 360 feet, 55 pieces, 2 by 4 inches, for 12 plates on lookout brackets and belfry frame.

Plans and Specifications.

- 72 feet, 24 pieces, 2 by 6 inches, for 12 frames of front platform and rostrum.
- 2,700 feet, common boards for roof.
- 22,500 seasoned sawed shingles.
- 600 feet, dressed stock boards for decks and gutters.
- 2,000 feet, second clear 1-inch dressed lumber, for cornices, belfry, etc.
- 60 feet, narrow clear flooring, for platform.
- 96 feet, 12 pieces, 2 by 4-inches, 12 feet long, second clear dressed lumber, for outside steps.
- 325 feet, second clear narrow matched wainscoting, for buttresses and hood ceiling.
- 200 feet, 2-inch second clear plank, for buttresses and basement steps.
- 500 feet, 1½-inch clear dressed plank, for door-frames and wainscoting caps.
- 4,000 feet, narrow clear matched and beaded wainscoting.
- 1,200 feet, 1-inch clear dressed lumber, for inside finish.
- 400 feet, 1¾-inch clear dressed plank, for stair risers and wall strings.
- 300 feet, 1½ inch clear dressed oak plank, for stair steps.
- 450 feet, 2-inch common plank, for stair carriages.
- 1,450 lineal feet of band-molding for casings.
- 16 boxed window-frames, square head, 1¾ inch check-rail sash for 8 lights, 16 by 30 inches, with inside blinds.
- 14 boxed window frames, segment-head, 1¾-inch check-rail sash for 8 lights, 16 by 30 inches, with inside blinds.
- 2 boxed window-frames, square head, 1¾-inch check-rail sash for 8 lights, 12 by 30 inches, with inside blinds.
- 3 bull's eye frames and sash, 24-inch round glass.
- 8 frames and 9 sash plank frames for basement, 2 lights, 16 by 30 inches.
- 1. transom sash outside, 3 by 6 feet, for 2 lights, 32 by 34 inches.

Plans and Specifications.

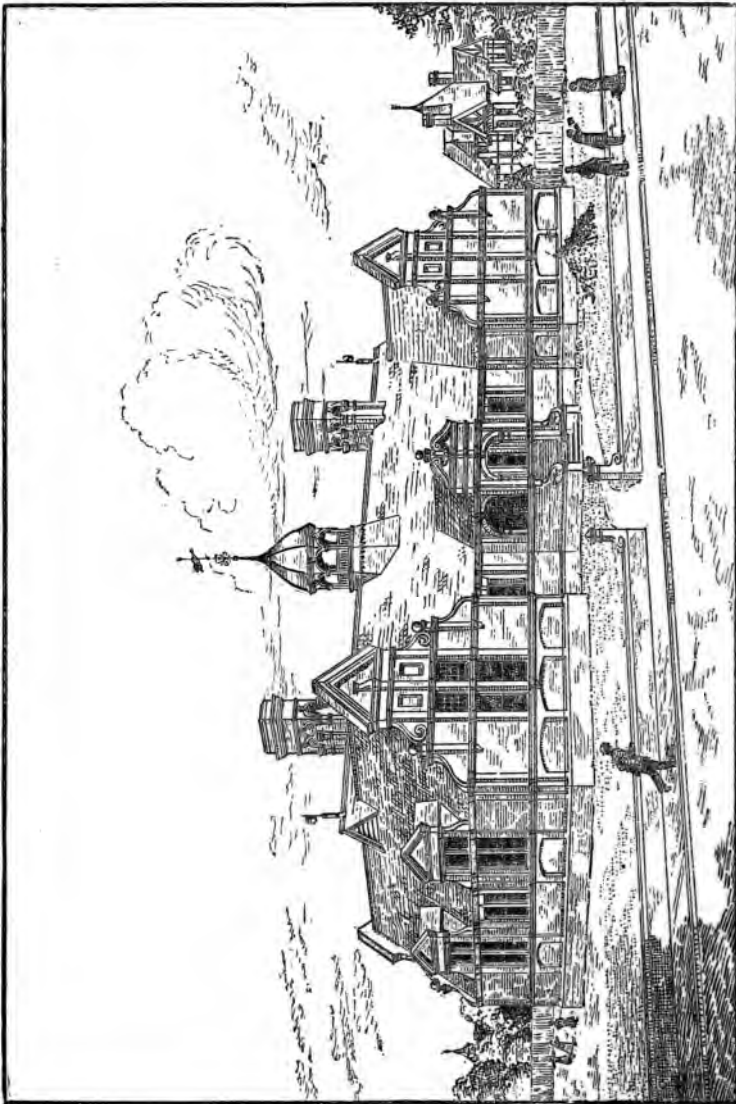
- 1 outside door-frame for double doors, 8 by 9 feet 9 inches, and transoms above.
- 2 front doors, 3 by 9 feet 9 inches, six panels, 1½ inches thick.
- 14 doors, 2 feet 10 inches by 8 feet 4 inches, four panels, 1½ inches thick.
- 1 door, 2 feet 8 inches by 6 feet 6 inches, for basement.
- 1 door, 2 feet 10 inches by 7 feet 6 inches, on outside to basement.
- 15 hard wood thresholds.
- 17 turned door stops.
- 28 brackets, for eaves of main cornice, molded.
- 6 brackets, in pairs for gables, molded.
- 18 modillions, in pairs for gables, and 40 for eaves, molded.
- 2 brackets, for hood over front door, molded.
- 326 lineal feet, crown-molding, for main cornice, 5 inches wide.
- 290 lineal feet, bed-molding, for main cornice, 3 inches wide.
- 290 lineal feet of frieze-molding, of both kinds.
- 50 lineal feet, crown-molding, for belfry, 3 inches wide.
- 4 valleys, 22 feet long, 20 inches wide, one cross tin.
- 124 feet, tin gutter, 24 inches wide, one cross tin.
- 7½ squares of tin, for deck cornice, shelf cover, and flashings.
- 2 double tin pipes, 5 by 18 inches, and 19 feet long, with register-heads at top, and collars at bottom, etc.
- 58 lineal feet, 4-inch round, for hot-air pipes, with elbows, dampers, etc.
- 16 lineal feet, 8-inch No. 24 galvanized iron smoke-pipe.
- 2 registers, 14 by 18 inches; 1 register, 12 by 17 inches
- 2 registers, 16 by 20 inches.
- 1 furnace equal in capacity to No. 6 or 7, Ruttan Company.
- 1 gong bell, bronze bell-pull, cranks, and wire.

Plans and Specifications.

- 1½ kegs, four-penny nails; 2 kegs, three-penny nails; 3 kegs, ten-penny nails; 2 kegs, eight-penny casing nails; 1 keg, twenty-penny nails; 1 keg, thirty-penny nails.
- 1 iron weather-vane.
- 44 T-head anchors, $\frac{3}{8}$ by $1\frac{1}{2}$ inches, iron, 2 feet 6 inches long.
- 10 pairs, double acting 6-inch union spring hinges, with screws.
- 12 pairs, $4\frac{1}{2}$ by $4\frac{1}{2}$ -inch japanned pin butts, with screws.
- 1 $\frac{5}{8}$ -inch flush bolt, with knob, eyelets, etc., 24 inches long.
- 1 $\frac{5}{8}$ -inch flush bolt, with knob, eyelets, etc., 12 inches long.
- 2 japanned foot-scrapers.
- 1 Yale store-door lock, with two steel keys.
- 20 strong brass door-handles.
- 8 strong mortise-latches, brass-faced bolts and brass knobs.
- 1 $\frac{5}{8}$ -inch barrel bolt, inside of basement door.
- 360 strong school-house clothes-hooks.
- 120 pairs, light blind butts, 2 by $2\frac{1}{4}$ inches, with screws.
- 120 pairs, light blind flap butts, $1\frac{1}{4}$ by $2\frac{1}{4}$ inches, with screws.
- 64 tucker bronze shutter bars.
- 32 tucker bronze Payson's patent sash locks.
- 120 cast-iron sash weights.
- 900 feet, Silver-lake sash cord.
- 9 pairs, 2 by 2-inch butts, for basement sash.
- 8 bolts for fasteners of basement sash.
- 240 lights of glass, 16 by 30 inches, single thick American.
- 16 lights of glass, 12 by 30 inches, single thick American.
- 2 lights of glass, 32 by 34 inches, single thick American.
- 3 lights of glass, 24 by 24 inches.
- 18 lights of glass, 16 by 30 inches.
- 550 pounds of white lead.
- 60 gallons of linseed-oil.
- 70 gallons of shellac.
- 100 pounds of putty.
- 9 gallons of liquid slating.

Plans and Specifications.

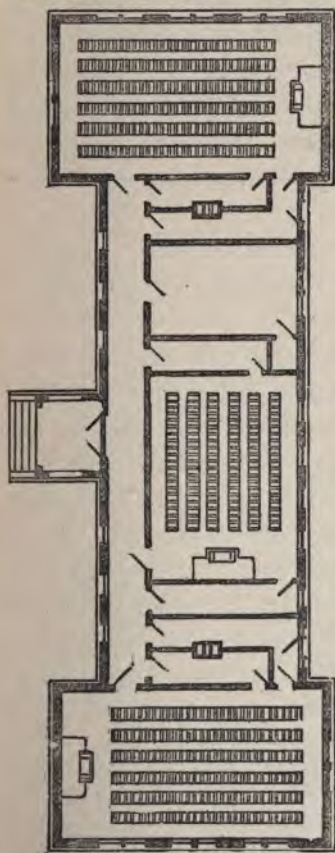
The ninth design is furnished by Henry C. Koch & Co., architects, of Milwaukee. It is for a one-story, elegant school building, containing three school rooms and a teachers' room, which



DESIGN 9 — PERSPECTIVE VIEW.

Plans and Specifications.

are connected together by a long corridor in front. Separate wardrobes for girls and boys lead from this corridor into the school rooms, and are used for the entrance and exit of the pupils. The school rooms are indicated by the rows of desks on the plan. The room shown without desks is for the principal of the school, and can be used for the recitation of classes when necessary.



DESIGN 9—FLOOR PLAN.

The central part of the building is 140 by 46 feet, and will accommodate 228 pupils in the three rooms. This design requires that the building be of brick, with a stone basement up to the line of the top of the water-table. The belts and pilasters are of brick; and the copings on gables, of stone or terra cotta. This roof may be slated or shingled.

The site for the building and the ground immediately surrounding it should be well drained, and drain-tile should be laid outside the footing stone on all sides of the building, with a slight inclination to the point of the outlet. The foundation walls should be laid with cement mortar up to the line of water-table.

The bottom of the cellar should be covered with small stone-spalls or clean coarse gravel, to a depth of at least 4 inches, and then grouted with liquid cement. When the grouting is set, the floor should be finished with a coat of Portland cement, at least one inch thick.

The plastering on the walls should be sand-finish, floated off straight and true, and rounded into the frames on the jambs of the

Plans and Specifications.

windows. No wood casings are used. The plastering should be continued down to the floor, full to the face of the grounds for wainscoting. The ceilings should be finished white, with the usual hard coat.

The floors should be of maple or other hard wood, dressed and matched, not over $2\frac{1}{2}$ inches wide on the face; and smoothed off after being laid.

All the corridor and school rooms should be wainscoted from the floor to the height of the window-stools. The wardrobes should be wainscoted 6 feet high from the floor, and all finished with a neat capping. Back of each teacher's platform is the blackboard, and the top of the wainscoting below the blackboard is finished with a shelf for chalk.

The teacher's platform should be located as on the plan, so that the rays of light will be over the left shoulders of the pupils as they face the teacher.

The building can be heated by means of two furnaces, using the center flue in each stack for the smoke-flue. The stacks are shown on plan, located between the wardrobes at each end of the building. The two remaining flues in each stack are for ventilation. The warm-air flues are carried up in the walls between the rooms, which they may enter through registers above, at, or near the floor. A sufficient number of registers will be inserted in the floor, equally distributed, in each room, and a foul-air duct connected with each of these and the main foul-air duct. This last duct is connected with one of the vent-flues in the stack, and extends along the ceiling of the basement to a point necessary to receive all the branch ducts from the registers in the floors.

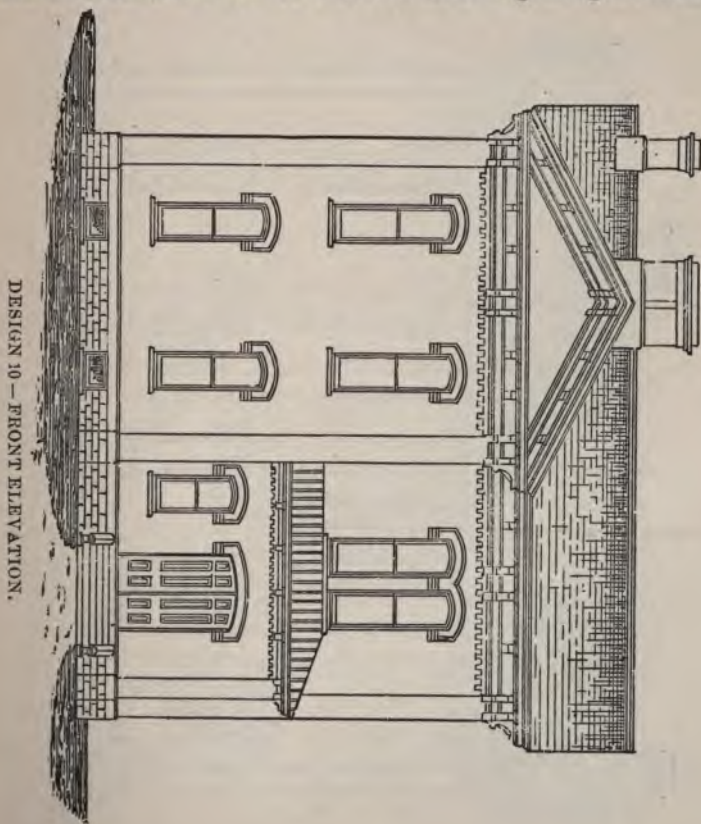
The capacity of the main duct should be fully equal to the combined capacity of all the branch ducts which it receives. All the foul-air ducts should be made as nearly air-tight as possible.

The important consideration in this branch of the work is to provide inlets for fresh air and outlets for foul air, both of sufficient capacity to insure a complete change of the air in the room

Plans and Specifications.

in the shortest time possible, without producing a perceptible draught. The capacity of the foul-air ducts should always exceed that of the fresh-air ducts.

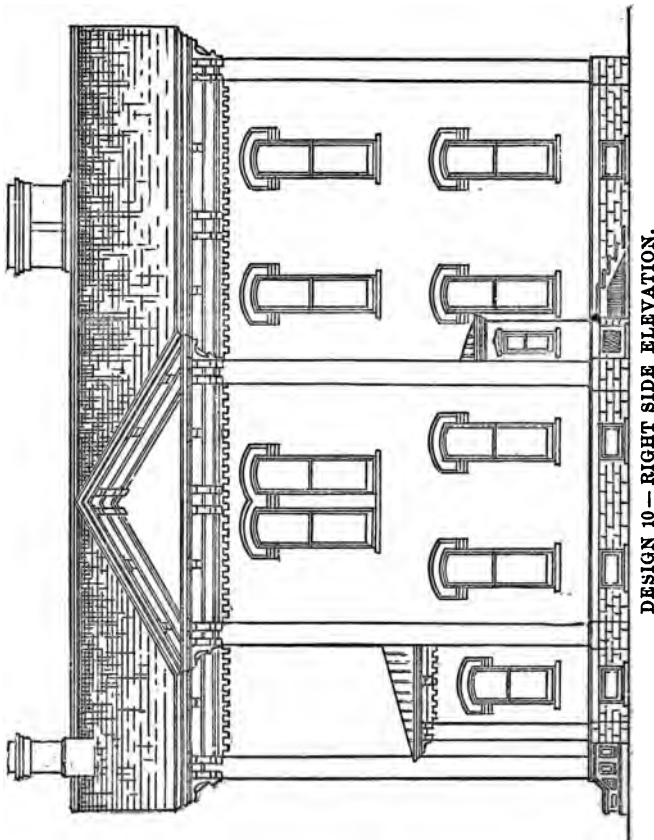
4. *Four-room school houses.* The designs for these houses have been prepared for the larger villages and the small cities, in which public schools are maintained usually with four departments, — the high school being added to the three other grades. Quite often another arrangement is made by assigning the two lower rooms to the primary pupils, and the upper rooms to the intermediate and grammar ones, the last including also those in high school classes when in attendance. In two of the following designs recitation



Plans and Specifications.

rooms have been provided, in which these classes can be accommodated when required.

The buildings are superior in the simplicity and beauty of their external appearance, in the shape and adaptedness of their different apartments, in the allotment of floor and air spaces to the number of children who can be seated in their school rooms, in the amount and direction of the light admitted into all their parts, and in their requirements for heating and ventilation. It would be difficult to find three styles of school-houses more diverse, and yet each furnishing so many facilities for a school of about 200 children.

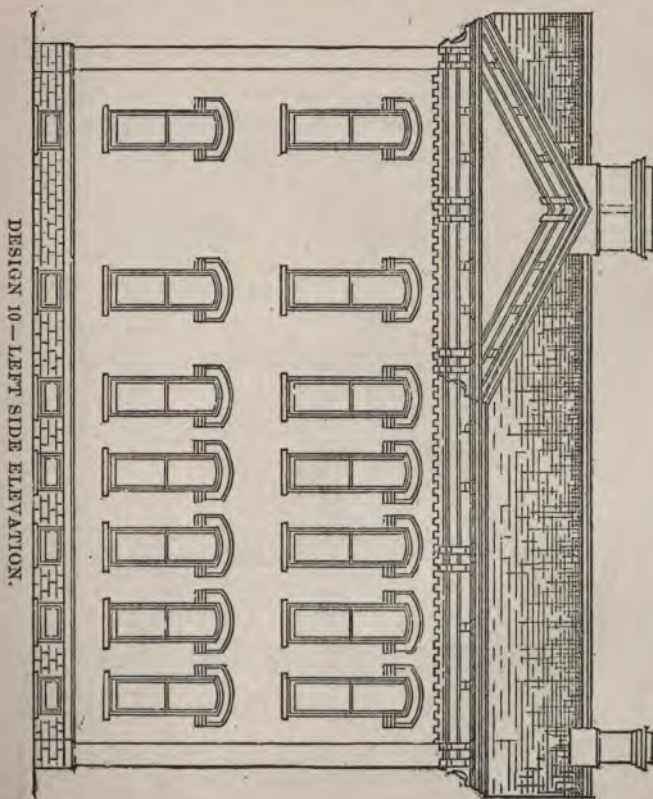


DESIGN 10 — RIGHT SIDE ELEVATION.

Plans and Specifications.

The tenth design was given by D. R. Jones, architect, of Madison. It was first prepared for the city of Columbus, in this State, and was erected the past year. It is a model of plainness in the outside finish, and of convenience in the internal arrangements for school work.

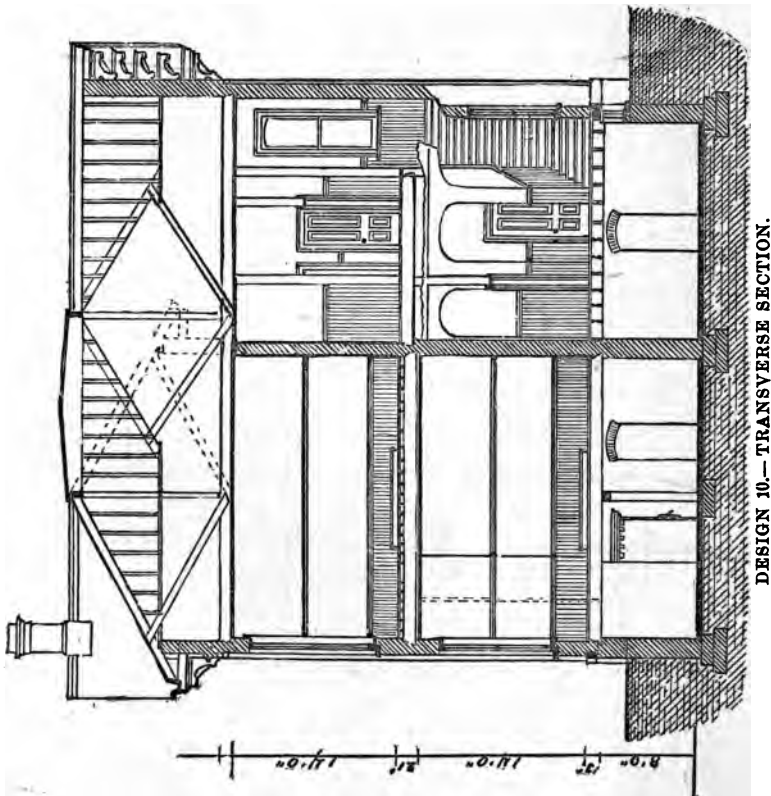
The basement walls are stone and those above are brick. The roofs are shingled, and their construction as the seeming coverings to wings of a building has a very pleasant effect. The projection of three ends of the building and the columns set in its corners remove the bare, monotonous appearance of the external walls on those sides. The chimney in the front end of the build-



Plans and Specifications.

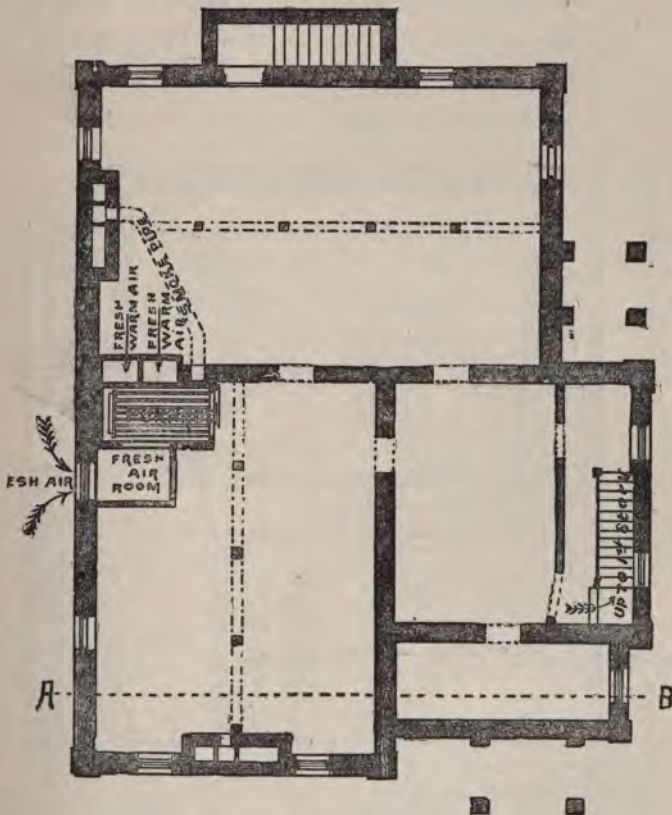
ing is retained, though it is not used for conveying away the smoke from a furnace. The largest flue is needed for purposes of ventilation in the school rooms connected with it on both floors. One of the two smaller flues in this chimney, as well as one in the other, could be omitted, while the second one in this may sometime be required for another furnace.

The impression that the number of windows is too many for the necessities of the school rooms, will be removed when the amount of their surface is compared with the area of the floors in in these rooms. The arrangements for the admission of light mainly to the left of the pupils, and in the halls and cloak-rooms, are, on the whole, such as the established rules demand.



Plans and Specifications.

The section of the building is made through the basement and the floors on the lines marked A. B. It exhibits the position of the foundation walls and the furnace in the basement; the location of the stairway, partitions, a few doors, the front cloak-rooms, and the teachers' platforms in two school apartments on both floors, and the construction of the roofs.

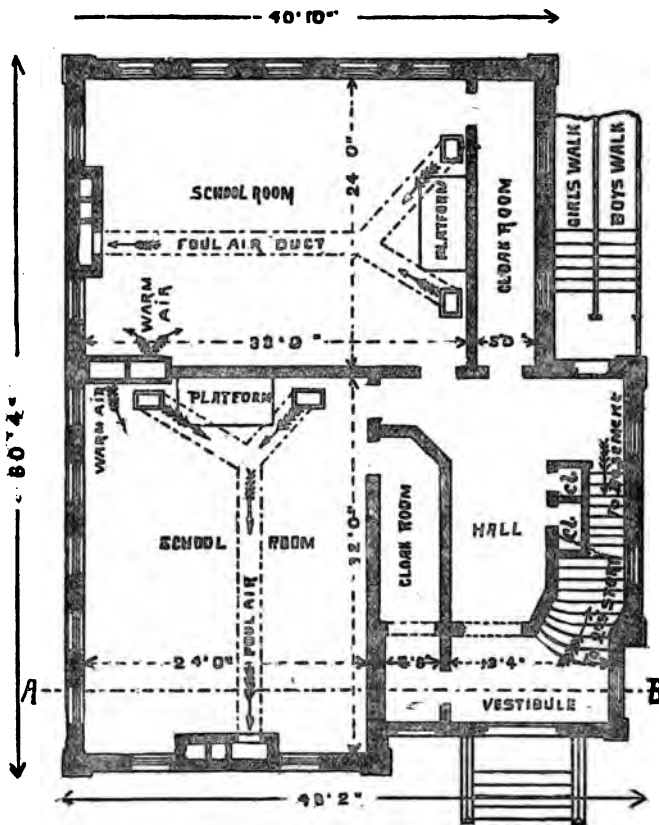


DESIGN 10 — BASEMENT PLAN.

A single furnace of the size of No. 7, Ruttan, will heat and ventilate the school rooms, when the warm-air ducts enter these rooms vertically from the brick inclosure of the furnace, and are

Plans and Specifications.

each at least 10 by 36 inches in sectional area above the basement. The plans show clearly the contrivances for withdrawing the foul air from the school rooms. The method here employed is not regarded as the most successful, but will perform fair work. The floors are not entirely warmed by the air exhausted from the rooms; neither is the cold draught from the windows intercepted, as in other designs, and forced through registers or ventilating bases under the windows. It would be an improvement if the heated air from the furnace could be spared to warm the halls



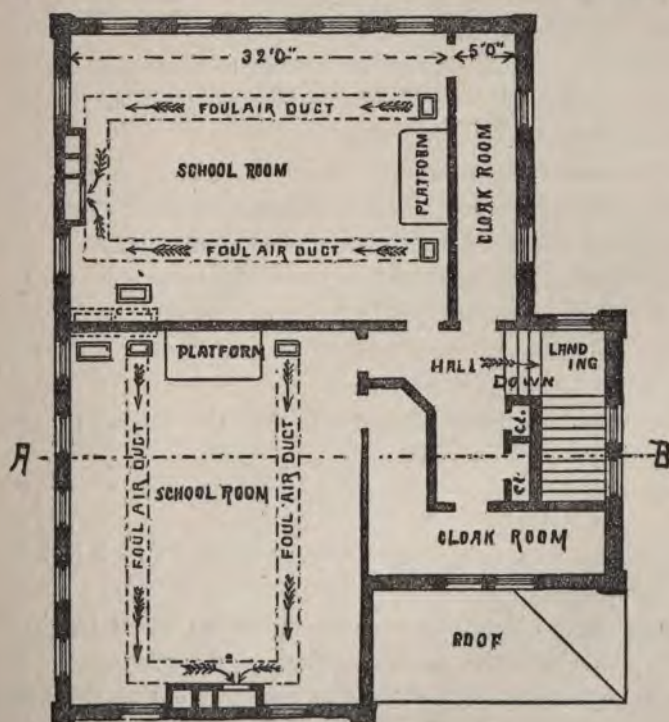
DESIGN 10—FIRST FLOOR PLAN.

Plans and Specifications.

and the cloak-rooms. This could be done if a second furnace should be introduced.

Each main story is 14 feet in height, and the upper one is reached by quite a broad stairway with easy steps and a convenient landing. Access is gained to the basement by a narrow stairway under the principal one. In each of the halls are small closets in which the teachers can place their clothing.

Each school room has the floor area of 24 by 32 feet. It will seat forty pupils at single desks, consisting of five rows and eight in a row; and fifty-six pupils, with forty-eight at double desks in three rows and eight at single desks in one row. For each of the forty pupils there are 19.2 square feet of floor surface, and 268.8



DESIGN 10 - SECOND FLOOR PLAN.

Plans and Specifications.

cubic feet of air space; and for each of the fifty-six pupils, 13.7 square feet of the former and 192 cubic feet of the latter, — not quite sufficient for this number.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

General Remarks.

Whatever work is shown by the plans or included in these specifications or fairly implied by either or both, is to be considered as a part of the work to be performed by the contractor; and no part of it so shown or implied, will be considered as having been omitted or not included in the contract, unless such omission shall have been specially noticed or excepted in that instrument. The contractor or his foreman is expected to be on the the work during all working hours, and to give such directions to the workmen as will secure the faithful carrying out of the plans and specifications.

Follow the figures on the plans and details in all cases where figures are shown, and do not attempt to work by scaling the small plans. For general style and size of the building, positions of doors, windows, partitions, etc., see plans and elevations.

Contractors submitting bids for the work will be expected to furnish bonds to the amount of three thousand dollars for the faithful performance of the work.

It is to be distinctly understood that the building committee has a right to reject any or all bids presented.

Mason Work.

Excavate a basement under the building, to be 9 feet deep in the clear, with trenches for footing courses, as shown on section. The building committee will determine the exact height of the water-table above the natural surface of the ground, the excavation to be 6 inches larger than the measurement of the outside of the walls all around. Excavate trenches under the buttresses of the front steps, and under the fronts of the rear steps, each to be

Plans and Specifications.

3 feet 6 inches deep below the natural surface of the ground. Excavate cold-air chamber under the furnace, to be 3 by 3 feet in the clear inside of the brick-work, and to extend outside of the furnace and to form an air duct which leads from the furnace to window adjacent. The trenches for the main walls must be deepened in the vicinity of the cold-air ducts, one foot below the bottom of the cold-air chamber. Excavate pits under the flat stones supporting the posts in the basement.

The soil from the above excavations to be deposited on the ground in a manner to form a natural grade. If not needed for that purpose, remove it or a part of it off the premises, as directed by the building committee.

Fill around the walls after they shall have become dry. The filling must be packed hard and of such height as to shed water away from the walls. The tops of these must be covered with boards every evening and in the day time if it rains, to prevent water from washing and discoloring the walls.

Start all walls on large footing courses, the stone to extend across the trenches unbroken, to be embedded in thin slush mortar about the consistency of cream, which must be poured into the trenches until it lays about 2 inches thick on the bottom of them.

Rubble-stone walls to be built of large stones, laying on their natural quarry bed, except ashlar; and to have binding stone extending through the walls at short intervals. The interior of the walls must be thoroughly filled, first by filling cavities nearly full of mortar, and then embedding stones in the mortar. In no case will it be allowed to fill cavities with dry stone-chips and then slush mortar over the surface. All walls must be built with two lines, both sides raised together, and all the rubble-work must be pointed neatly outside and inside.

Face the foundation walls below the water-table with native stone, of sound grain, and of uniform color, and to be cut into courses of about 10 inches each, with pitched edges and rock

Plans and Specifications.

face. All projecting corners and door and window-jams to be cut smooth drove work. The above ashlar must be fully 5 inches thick, with headers extending through the walls every 10 feet apart, and alternate courses in height. After the timbers are set the stone-walls are to be built clear up to the top of the sills, and the partition walls up to the top of the joists. All stone-walls must have bond-stones extending through the walls at short intervals. Lay stone footing courses under the brick foundation walls, to be embedded in trenches and in thin slush mortar, same as described for stone-walls. The footing stone to extend 6 inches each side of the brick-walls for each projection. Set 2 by 2 feet stone, 10 inches thick, under the posts that support the beams in the basement. These to be dressed level on top and grouted underneath, like the footing courses. Build piers under the front and rear steps to the top of the ground. Build area wall around the basement door-way, to be laid up from a depth of 2 feet below area bottom. Set cut stone capping on top. All must be built with mortar in the best manner.

The two outside door-sills to be of Joliet hard limestone. Basement door-sill, water-table, and window-sills to be of native stone, cut fine drove work.

The outside walls of the building to be of brick twelve inches thick. All the outside brick must be burned perfectly hard, of uniform color, red or light, as determined by the committee; and must be straight and molded smooth. All must be laid with small straight joints of mortar, filling all joints thoroughly. Turn brick arches over door and window openings, with a true outline, as per elevations. All the outside brick must be soaked in water just before they are laid; and all the brick for the inside must be well burned.

Build all the flues as shown on plans, of the full capacity, as marked, warm-air flues to be 24 by 30 inches each in the basement. All flues must be plastered smooth on the inside, and all joints must be thoroughly filled with mortar. Leave openings in

Plans and Specifications.

all flues, walls, and shafts for heat-pipes, registers, smoke-pipes, foul-air ducts, etc., and build close around all such registers, pipes, etc., after they are set. Build the brick-work around the furnace and cold-air duct and chamber, as shown on the plans; the cold-air duct must be fully 9 square feet in capacity, and to have 2-inch cement floors. The brick side walls to be 4 inches thick, with an arch on top. The chamber at the window to be built up of the same capacity as the duct, with a window on one side of same size as the outside window. The heat-flues must be stopped off with no less than four thicknesses of brick at the tops of the registers, and must be plastered white and smooth inside, as far as can be seen through the registers. The mason must be careful to slush with mortar between the bricks and the door and window-frames all around. This is important, and must not be overlooked. The brick work will continue up in the gables above the cornice shelf, and under the wall-plates. Insert tin counter-flashings in the brick-work just above said shelves, and above the vestibule roof, also around the chimneys above the main roof; said strips to be built into the brick-work 2 inches, and to stand out long enough to cover the flashing down to the roof. All the mortar used throughout the building must be well-mixed of fresh well-slacked lime, and clean sharp sand.

Scaffolds outside of the building must be built independent of the walls, by extending timbers through door and window openings, and with poles on the outside; and in no case will putlog holes be permitted in the brick-work outside.

Deafen the second floor with a $1\frac{1}{2}$ -inch thick layer of mortar and sawdust, mixed with equal proportions of each. It must be filled full at the bridging and walls. Two spaces will be left open in each school room for foul-air ducts.

If the mason does not leave all openings in walls, shafts, flues, etc., for all pipes, registers, etc., he must cut the same when such pipes, registers, etc., are set; and build around the same in a complete manner. Set $\frac{1}{2}$ by 3-inch wall strips in the outside walls

Plans and Specifications.

every 2 feet in height. Clean all the rubbish out of the building and off the premises, leaving all clean and neat.

Lathing and Plastering.

Lath and plaster all the walls and ceilings of the two principal floors. Plaster in all places to reach clear down to the floor. The lath must be well seasoned, and nailed nearly $\frac{1}{2}$ inch apart, with joints broken every two strips. The interior of all closets to be plastered two coats, hard-finished. All other walls and ceilings to be plastered three coats, hard-finished. The plaster under the blackboards must contain a large percentage of plaster of Paris in each coat. All must be troweled hard, and all surfaces must be made true and straight. Each coat of plaster must be perfectly dry before the succeeding coat is put on, the plaster to run unbroken up between second floor joists. Do all the necessary patching and repairing after the other parts of the work are complete. No fire cracks or blisters will be allowed in any part of the work. Clean all the rubbish out of the building and off the premises.

Carpenter Work.

All timbers must be well seasoned and free from large or loose knots that will impair their strength. No rot will be permitted in any of the lumber. All second clear lumber must be dry, free from large or loose knots, shakes, or splits. All clear lumber for the inside must be thoroughly kiln-dried and kept in a dry place until used. All framing must be kept fully 1 inch away from all flues. Wherever wainscoting is mentioned for the inside, it will be understood to be white clear pine, matched, beaded, and smoothed over, and no more than $2\frac{1}{2}$ inches wide when matched. All inside finishing lumber to be smoothed and sand-papered after the mill work. All the oak used must be dry, free from cracks and rots.

The measurements on the plans are taken to the face of the plaster; for instance, partitions marked 10 inches on the plans are

Plans and Specifications.

to be made of 2 by 8-inch studding, lathed and plastered both sides.

Under the joists of the two school rooms in the basement, set 8 by 8-inch beams, resting on 8 by 8 inch posts, with 4 by 8-inch oak caps, 2 feet long on the posts. Set four thicknesses of tarred paper on top the stones under the posts.

Joists of the first floor and the hall part of the second floor, to be 2 by 12 inches, set 16 inches to centers; to be double under all partitions resting on joists, and to have double trimmers and headers at all stairways, shafts, etc. All to have full tenon and one tusk to each joist and well spiked together besides. Joists of second floor over school rooms to be 2 by 14 inches, set 8 inches to centers. To be framed in the same manner as decided for the first floor. Joists of both floors to be dressed on the edges of uniform size and shape, crowning about $\frac{1}{2}$ inch in the center.

All joists to have two rows of strong bridging to each length of joists over 15 feet long. Bridging to be nailed with two nails at each end and made to fit well. Anchor the ceiling and second floor joists into the brick-walls every 7 feet apart with T-head anchors, of $\frac{3}{8}$ by $1\frac{1}{2}$ inches of iron.

Ceiling joists to be 2 by 10 inches, set 16 inches to centers, over school rooms; and 2 by 8 inches, set 16 inches to centers, over the hall.

Nail $\frac{7}{8}$ by $1\frac{1}{2}$ -inch strips on both sides of the second floor joists over the hall, and lay a rough floor of short boards cut between the joists to support deafening mortar. Nail the boards to the strips. Line the school room floors, second story, with dressed stock boards, and then cross-fur with 2 by 3-inch strips, laid 16 inches to centers. The two spaces used for foul-air ducts in both rooms, must be covered over the boards with building paper, which must extend under the strips and set overlapping and tacked to the boards at each joist. For the different heights of the second floor joists the carpenter must consult the section, as the joists vary in height so as to bring the floors on a level when cross-

Plans and Specifications.

furred. Frame with trimmers and headers in floor joists for all heat and foul-air registers shown on plans. The foul-air ducts in the second floor will empty themselves into an air-tight box, formed between joists, conducting the foul air into the vent-flue. Said boxes to be made of the capacity of the floor ducts at the outer ends, and to deepen towards the vent-flue. Set a partition across the box opposite the center of the vent-flue, so that the current of one box cannot cause a back current in the other. All joists meeting on partitions must be spiked to the plates below to the studding, and to each other, in the most thorough manner. For position of joists, see section.

All the studding are to be 2 by 6 inches, and 2 by 8 inches, as indicated on the plans. Those supporting school room joists and forming blackboard walls to be set 8 inches to centers, and all other studding of partitions to set 16 inches. All studding must be sized and set double at all door openings, and a bridged one through the center with cross-bridging. Fur all the outside walls with $1\frac{1}{2}$ by 2-inch strips, nailed true to wall strips every 2 feet, to be set 16 inches to centers, and one between each under blackboards. Fur up between second floor joists so that the plaster can be continued up from first to second floor.

Partitions over walls must start on a 2-inch wall-plate, resting on the solid walls. Under the second floor joists, set double plates over partitions. Set the studding directly over each other, and the joists along-side of the studding. All joists, studding, plates, etc., must be spiked together in the most thorough manner. All the second floor partitions, where standing over other partitions, must reach down between the joists to the plates of the lower partitions, as shown above.

Form all angles, to receive the lath, of studding spiked firmly together. This must be strictly attended to.

For general plans of roof, see elevations. It is to be hipped and gabled, and to have a deck on top. Rafters to be 2 by 8 inches, set 20 inches to centers. Deck-joists to be 2 by 10 inches,

Plans and Specifications.

set 20 inches to centers, furred in the center 4 inches higher than at the outer edges. Set 4 by 4-inch posts under the corners of the deck frame, resting on top of partitions. Tie with 1 by 6-inch fencing from the foot of each rafter to the ceiling joists, and from the center of each ceiling joist to where the rafters meet at the ridge, as shown on section. All must be well nailed at each end. Set 2 by 8-inch wall-plates on top of the brick-walls. Lookout brackets for main cornice to be made of 2-inch scantling, set about two feet apart. For position of lookout brackets, see section. The brick-work will be built up between and above them to the under side of the wall-plates. Rafters and ceiling joists of vestibule to be of 2 by 6-inches, set 16 inches to centers, and securely anchored to the main walls. Build the main and vestibule cornices of second clear lumber. Make the plancia of 6-inch matched flooring, rabbet the face down to the tongue on one edge and about $\frac{3}{4}$ inch wide, so as to show creases on the under side. All must be set straight and true. Cover the rafters with roof-boards, nailed close together; those on the deck and vestibule to be dressed and matched. Shingle the sloping parts of the roof with the best quality of seasoned sound shingles, laid $4\frac{1}{2}$ inches to the weather, and fitted close together. Finish all hips, ridges, and angles with boards and beads.

Form gutter cradles in the lookout brackets. The deepest parts of the gutters to be at the angles having the roof leaders. The shallowest part of the gutter to be about $1\frac{1}{2}$ inches deep. The slope on the bottom must be gradual and even. All the bottom must be tested by a straight-edge and level, and made of uniform descent. Line the gutter cradles with mill boards fitted close together and well nailed to cradles. Nail a nosing and fillet around the decks, to reach down over the shingles.

Frame a 2 by 3-foot scuttle on the main deck frame, to be 4 inches above the roof; and make a cover with overlapping boards. Also make a scuttle of the same size, with dressed frame and cover, in the ceiling of the second floor hall, where shown on

Plans and Specifications.

plan. Cover the ceiling joists with boards from the last named scuttle to underneath the upper scuttle, to form a platform 4 feet wide; and make a strong step-ladder from the platform to the upper scuttle.

The outside steps and platform to be made of oak strips, $1\frac{3}{4}$ inches thick and about $2\frac{1}{2}$ inches wide, set $\frac{1}{8}$ inch apart. The front strip forming the nosing must be about $3\frac{1}{4}$ inches wide, with scotia underneath and made of clear dry oak. Risers to be $1\frac{1}{8}$ inches of clear pine. Buttresses to be made of clear plank with panels of narrow beaded wainscoting, as shown on elevation. Carriages of all steps to be made of strong plank. Rear steps to be made plain of second clear dressed 2-inch plank. Inclose the platform of the rear steps with a vestibule made of narrow matched and beaded wainscoting, having a door and window. Simple cornice around the top and lattice work underneath, as shown on elevation.

Tin-work.

Gutters all around the main cornice, valleys, and conductors to be of the best one cross tin; and the tin of deck front and rear vestibule roofs, flashings, and counter-flashing, under the shingles around chimneys, the covering and flashing of shelf cornice across the gables to be of I. C. tin. Valleys to be 20 inches wide. Both gutters and valleys to have locked joints, soldered on both sides. Gutters must run up under the second course of shingles and be turned over and nailed to the front of the crown-molding. Tin for deck and cornice shelf to be nailed on the front in the same manner. Solder all tin-work with plenty of solder and use no acid in any part of the work. Clamp the tin of the roof firmly to the roof-boards. The four main roof leaders to be 4 inches in diameter, to be fastened with strong galvanized iron hooks, 2 inches away from the walls, and to terminate near the ground with a shoot. Set 2-inch conductors in the same manner to convey the water of the vestibule roofs to the ground. The tin

Plans and Specifications.

of the deck vestibule roof, valleys, gutters, and cornice shelves must be painted on the under side with a thick coat of mineral paint.

To form vent ducts for the first floor, construct boxes of matched flooring; to be in form like the ducts of the second floor, but to be set in the basement under the joists with air-tight boxes leading from each of the gratings in the floor to the main vent-box. Each branch of the main has to be of 100 square inches in capacity; and when both are joined, the capacity must be 200 inches. The box and its connections with the foul-air flue must be made air-tight.

The floors to be laid of narrow matched clear maple flooring, which must be perfectly dry and laid to fit close together; each strip blind-nailed to each joist, and the surface smoothed over clean and smooth.

Windows and Blinds.

Basement window-frames to be of plank, with strips built in the wall, and hung by weights and hempen cords. All window-frames in the two principal floors to have boxed frames; all made of second clear lumber. Sash of main floors to be hung with weights and pulleys, and Silver-lake sash cord, heavy size; pulleys to be 2 inches, turned, and must move easily; weights to be round, cast-iron; heads of frames to be of plank; finish the tops square inside. The outer track and molding of the frame, and the top of the outer sash to be segment, as shown on the outside; the deviation from segment to square to be made in the parting strip. Sash to be $1\frac{3}{4}$ inches thick, with beveled meeting rail. Must be well fitted to move easily, but not loosely. On the meeting rail of all the sash hung by weights, set Payson's patent sash lock in tucker bronze. Basement sash to be $1\frac{3}{4}$ inches thick, fastened with strong spring catches. The sash of the window opening into the cold-air chamber, must be made in one piece each, hung on hinges, and must have a regulator to fasten them open or closed or in any position. Set a sash pull on

Plans and Specifications.

the upper sash rail of all the school room and hall windows; and furnish a hook and rod, one for each school room to regulate the windows. Set inside blinds on all the windows of the two principal floors, and to be two-leaf high and four-leaf wide. All up-and-down joints to be beaded and rabbeted; the outer leaves to have raised panels, and the inner leaves rolling slats, and each leaf a middle rail. Hang the blinds with light iron blind hinges, set in flush with tucker bronze shutter bars and knobs, all complete, — two bars and four knobs for each window.

Doors.

Inside door-frames to be made of $1\frac{1}{2}$ -inch clear plank. Doors entering from halls to school rooms and cloak-rooms to be hung with 6 by 6-inch double action union spring hinges. All other doors to be hung with $4\frac{1}{2}$ by $4\frac{1}{2}$ -inch japanned pin butts, three to each door. Doors generally to be $1\frac{3}{4}$ inches thick, with four raised panels, O. G. stiles, etc. Outside front door to be six-paneled, as shown on elevation. On one leaf of the double doors set a $\frac{1}{2}$ -inch flush iron bolt with a knob, one at top 24 inches long, and one at bottom 12 inches long, with eyelets, etc., complete. On double acting doors set strong brass handles, one on each side. Set heavy brass thumb latches on the outside doors, and a Yale store-door lock with two steel keys to each. On doors entering from halls to school rooms, and from halls to clothes-rooms, set dead mortice-locks with two tumblers, brass-faced, and bolts. On doors not hung with double acting hinges and not otherwise specified, set two tumblers, mortice-locks, brass faced, and bolts, and solid brass knobs and escutcheons. Basement door to have common loose butts, strong thumb latch, and $\frac{3}{8}$ -inch barrel bolt. All doors must be made to fit closely. Set $\frac{1}{2}$ -inch hard wood thresholds under inside doors.

Set a strong iron foot-rack on the lowest step of each set of outside steps. Case all doors and windows of the two principal floors with architrave, castings, stools, etc. All the inside wood-

Plans and Specifications.

work of doors and windows must be made of first-class clear lumber.

Wainscoting.

Set ribs on the walls before plastering to receive wainscoting; two strips in height in the school rooms and three in halls and clothes-rooms, and to be $\frac{7}{8}$ by 3 inches, all set straight and nailed well to the studding. Around all rooms, closets, halls, stairways, etc., as shown on section, wainscot the exact height in different school rooms as determined by the building committee. It should be 5 feet high in the halls and stairway, and 6 feet high in all clothes-rooms. All to be laid plumb and well nailed to all ribs. To be of the best matched and beaded 2 $\frac{1}{2}$ -inch wainscoting, with cap and chalk box on top; to be laid close to the floor with a small fillet nailed to the floor in the angle of the floor and wainscoting. Set a strip of molding about 5 feet above wainscoting, at the top of the blackboards.

Rostrums.

Make rostrums in all school rooms as shown on plans, top to be matched 6-inch flooring, and finished in front with nosing and scotia, and to be 7 inches high.

Miscellaneous.

Set strong school-house clothes-hooks in all clothes-rooms, teachers' and janitor's closets, and 8 inches apart in double rows.

There are to be three arches on the principal floor, as shown on section, for which the carpenter must make true centers for the use of the mason. For forward sizes of arches, see section and ground plan.

Set a 4-inch gong bell in the hall, where directed by the building committee, to connect by means of copper wire, cranks, etc., to a bronze bell-pull at the front door; the bell to be of bell metal, and double action.

Construct the basement stairs and outside basement steps of 2-inch plank, dressed, resting on strong 2-inch plank carriages.

Plans and Specifications.

Build the main stair as shown on plans ; steps to be $1\frac{1}{2}$ inches thick, of dry white oak ; steps and risers to be tongued and grooved together, housed and wedged into the wall strings, and resting on strong plank carriages. The outer walls must be plastered before stairs are set up. Where the stair passes over the window, the string must be finished neatly on the outside with wainscoting, and a neat rail on the top to be set up about 2 feet 6 inches above the stair string. On one side of the stair set a wall hand-rail, made of walnut, $2\frac{1}{2}$ by 3 inches, molded. Return the ends to the walls at the top and bottom, and support the rail between by means of $\frac{3}{4}$ -inch iron brackets set in the wall, about 2 feet 6 inches apart, and screwed to the under side of the rail.

Set $1\frac{1}{2}$ by $\frac{3}{4}$ -inch dressed grounds around doors and windows, and under wainscoting. Continue the form of the second floor heat-flues, by furring with studding, lathing, and plastering to the ceiling of the rooms. None of the finishing work will be put up until the last coat of plaster is dry, and all the rubbish cleared out.

Painting and Glazing.

Paint all the outside wood-work usually painted, the roof, including ridge and hip-boards, etc., with three coats of paint ; and all the metal work with two coats of paint. The first coat on tin-work to be mineral paint. The colors of the paints for the last coat must be made to suit the building committee. Grain in walnut the outside of the front doors. All nail holes, cracks, open joints, etc., to be puttied smooth, and all sap and gum spots to be shellaced over. All the interior wood-work to be finished in shellac, including all doors, windows, blinds, wainscoting, rostrum fronts, risers of stairs, all strips, &c. First put on a coat of Wheeler's patent filler ; rub the filler all off before it is dry, and cover over with two coats of thick shellac. Rub all coats down well with fine sand-paper. Steps of the stairs and outside steps to be oiled over with three coats of raw linseed-oil, all well rubbed in. Prime all sash before glazing. All the glass in the

Plans and Specifications.

lower half of the first and second story windows to be the best kind of double thick American sheet glass. All other glass on first and second floors and basement to be of the best kind of single thick American sheet glass. All must be bedded in putty, pinned, and back-puttied in the best manner. All putty, oil, and shellac must be cleaned off all doors and window trimmings and glass.

Blackboards.

Lay blackboards on the walls of the four school rooms, behind the rostrum and on the blank side of each room. Blackboards to be started at top of wainscoting, and to be 5 feet high; to be made of Andrews' or J. D. Wilders' slate fluid, green or black, or part of each, as directed by the building committee.

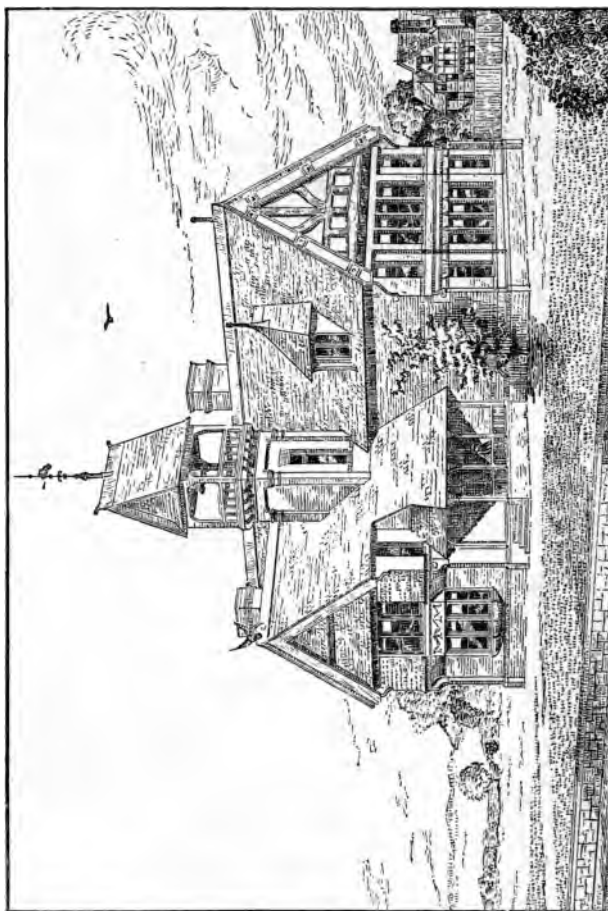
Heating Engineer's Work.

Set a furnace in the basement, where shown on plan, No. 7 of the Ruttan Manufacturing Company, or any other make of the same capacity, and such as the building committee may choose. Set in brick-work and connect to the cold-air duct and warm-air flues, and to the nearest smoke-flue by a No. 24 galvanized iron pipe of the capacity of the pipe collar on the furnace, with cooler damper on the pipe, etc. Furnish and set all the heat-registers, four in number, with regulating damper in the hot-air flues, and with a handle on the first floor to regulate the heat between the lower and upper rooms. Furnish and set all the foul-air gratings, two 10 by 16 inches, in each room floor, and one fan register, about 18 by 24 inches, direct to the foul-air flue in each room. All the work must be done in the best manner.

The eleventh design, furnished by H. C. Koch & Co., architects, of Milwaukee, is of a building to be erected in a small city or populous village. It is two stories high, and contains four school

Plans and Specifications.

rooms and two teachers' or recitation rooms. The latter are each 16 by 18 feet in the floor area. The upper story is a repetition of the lower one, as indicated on the plan; and each should be 14 feet in height. The main portion of the building is 67 by 45 feet at the



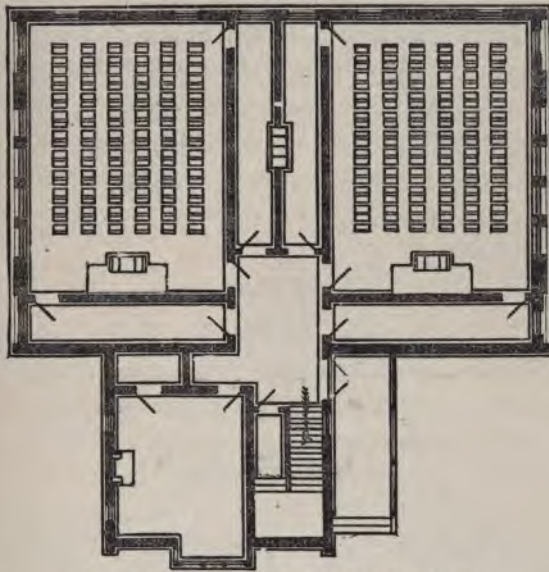
DESIGN II — PERSPECTIVE VIEW.

base; and the wing, not including the porch, is $26\frac{1}{2}$ by $24\frac{1}{2}$ feet.

Both brick and wood are required in the construction. The front gable above the first story is frame, as are also the end gables from the line of the eaves; and the remainder of the outside walls,

Plans and Specifications.

as well as the inside ones, are built of brick. The frame portions of the gables project over the walls below and are finished with shingles. The end gables are in imitation of timber-work. The



DESIGN 11 — FIRST AND SECOND FLOOR.

style of the building, while unusual, is plain and very attractive. The cost of erection is by no means greatly increased by the new features. The method of shingling portions of the outside walls, employed in this design as well as in some others in this circular, is a return to the plans used in this country over a hundred years ago. Such a covering is found to be warmer than clapboarding and to wear much longer. Besides it gives a picturesque effect to the building.

See description under ninth design for the construction of the foundation and cellar, and for the finish of the inside throughout.

Each school room will accommodate sixty pupils, seated at single desks. The separate wardrobes for the sexes and connected with each room furnish all needed facilities for depositing the cloth-

Plans and Specifications.

ing. Through them the girls and boys enter and leave the room at different doors. The extra room on each floor for the teachers or for the recitation of small classes will prove very desirable additions.

The grouping of the principal windows at the side of the study rooms is in conformity to the established principles for the wholesome admission of light. In one half of the building the light is received on the right side of the pupils. This is more advisable than to require them to sit facing the windows at the rear end of the room; or even the blank wall at the side, with a very large share of the light streaming over their backs onto their books or papers on the desks.

The twelfth design was prepared by Messrs. Edbrooke and Burnham, architects, of Chicago. It presents the appearance of a solid, enduring, symmetrical, and imposing structure. Its external embellishments are few and simple, and therefore adapted to its general style. It would be an ornament to any village or city.

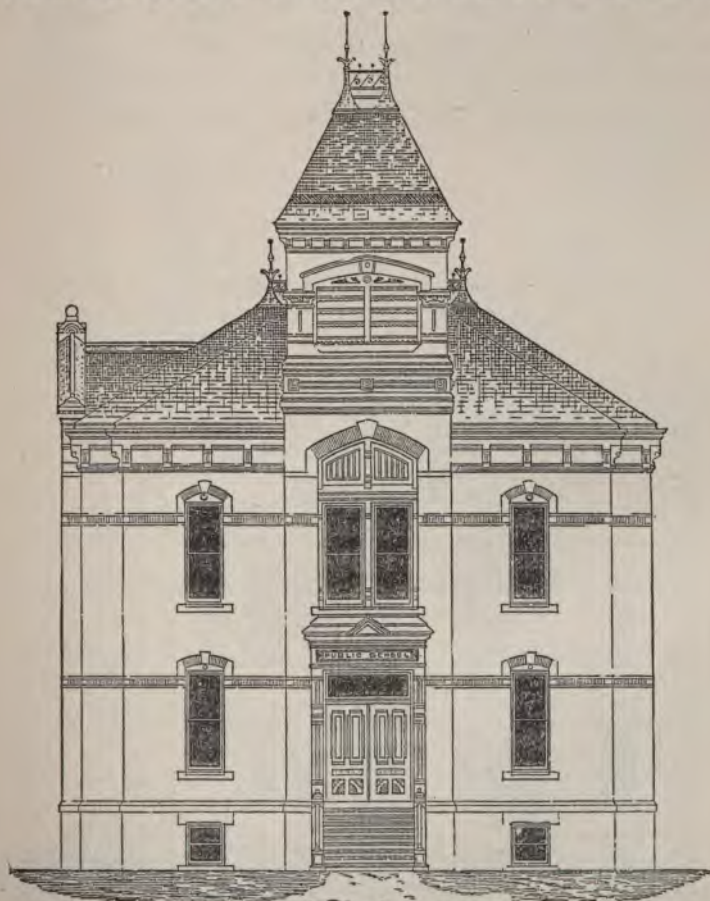
The outside walls of the basement are built of stone, 18 inches in thickness; and its partition walls, of brick, 8 inches in thickness. The exterior walls of the first and second stories are brick, 12 inches in thickness; and the partition walls are wood, with studding varying in size for the places it occupies. The height of the basement in the clear between joists is 7 feet 8 inches; of the first story, 13 feet 3 inches; and of the second story, 14 feet 3 inches. The sectional area of the house, measured at the base of the first story, is 49 feet 6 inches by 52 feet.

The building furnishes the usual conveniences for corridors, pupils' wardrobes, teachers' or recitation rooms, and apartments for study. Two quite spacious rooms are set apart in the basement as play rooms for girls and boys. These can be used in the wet or stormy weather, or in places where no sufficient playgrounds can be provided in the school yard. Each school room will accommodate thirty-five pupils at single desks; or very comfort-

Plans and Specifications.

ably forty-two pupils, at double desks. Each of the former number would have 19.7 square feet of floor surface; and of the latter, almost 16.5 square feet. If small children should occupy the rooms on the first floor, one row of seven single desks could be added to each room with the double desks, and in it forty-nine pupils would then be furnished with seating, and each have slightly over 14 square feet of floor space.

The crowning feature of this school-house consists in the ar-



DESIGN 12 — FRONT ELEVATION.

Plans and Specifications.

rangements for the ventilation of all its parts. A more complete and perfect application of the Ruttan system to a school building has never before been devised. In this design it has been effected under the immediate directions of Isaac D. Smead, the able representative of this system. The accompanying plans and sections exhibit the details of the arrangements for the heating and ventilation of the building.

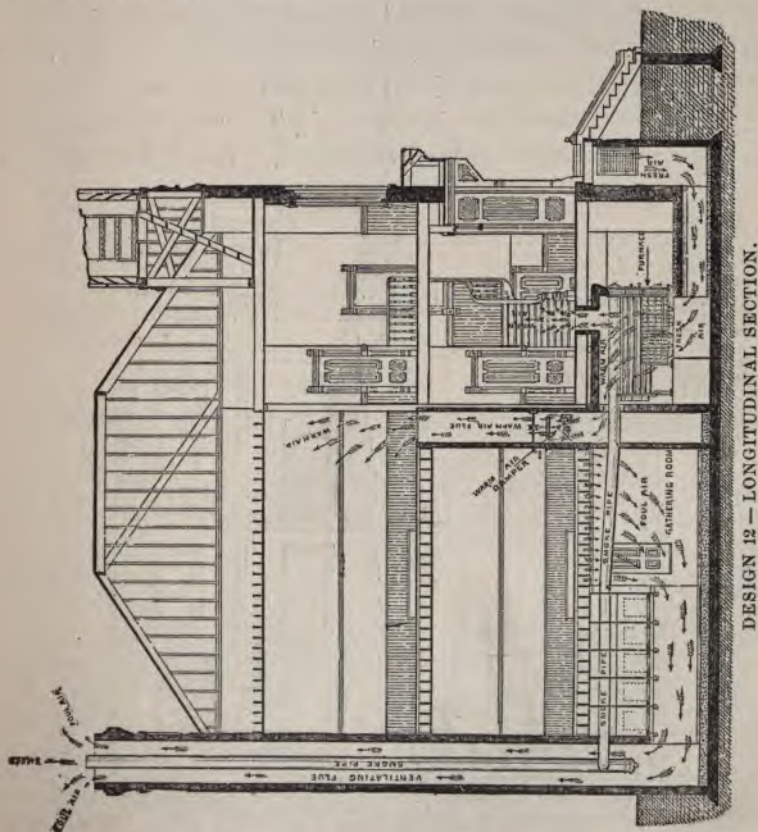
Immediately underneath the platform of the front steps, as seen on the longitudinal section, is the fresh-air chamber communicating with the outdoors through windows covered with heavy wire-screens. From this chamber a fresh air duct leads under the large-sized furnace, as shown in the basement of the



DESIGN 12 — LEFT SIDE ELEVATION.

Plans and Specifications.

longitudinal section which is made on the line A. B. The heated air enters through short flues into the corridor and directors' or recitation room on the first floor, and warms also the stairway and the corridor on the second floor. The wardrobes on both floors could be partially warmed by opening the doors from the corridors. The recitation room on the second floor is supplied with air from the furnace through a small flue in the partition below, which is built of brick. The four school rooms receive this air through a central flue, in which a damper regulates the supply for the first floor.



Plans and Specifications.

The foul air is exhausted from the recitation and school rooms through the perforated iron bases under the windows; passes under the floors between the joists; descends through the partitions between the studding, as indicated in both the longitudinal section and the transverse one for the foul-air gathering room; and is drawn through the privy vaults into the ventilating shaft, which is $3\frac{1}{2}$ by 4 feet on the inside. Here a powerful draught is produced from the air forced into it by the action of the furnace, and by the heat supplied the upright smoke-pipe in the shaft.

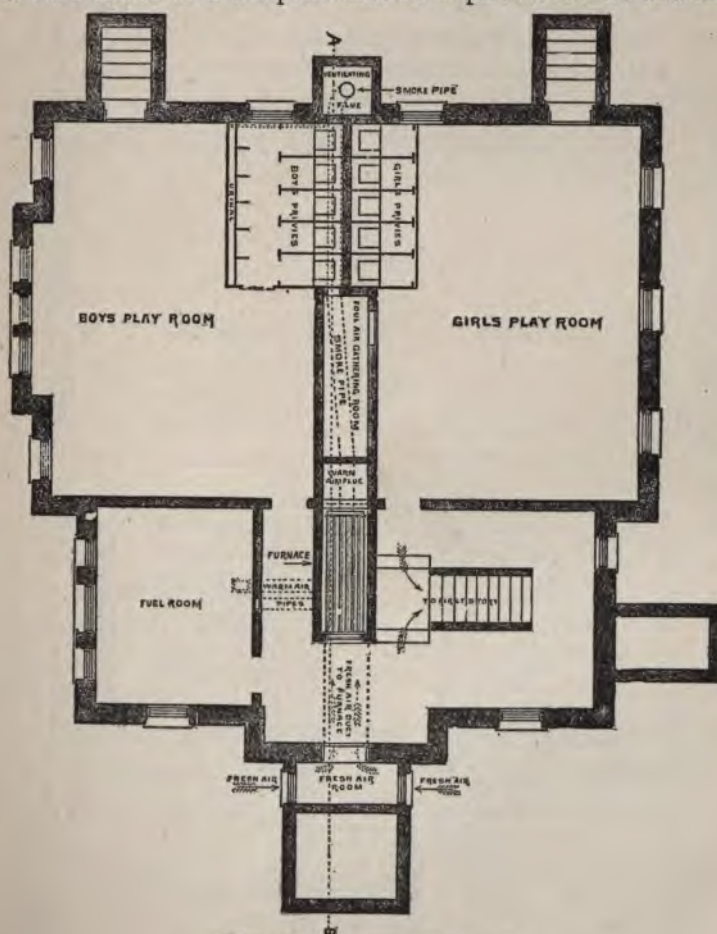
The construction of the separate privies for girls and boys is shown in the basement plan and in the smaller transverse section. The excrementitious discharges fall from the seats into the vaults beneath, which are each $4\frac{1}{2}$ feet deep and 17 inches wide. The contents from the urinals in the boys' privy are emptied through a pipe at the foot of the ventilating shaft. The exhausted air, as



DESIGN 12 — TRANSVERSE SECTIONS, PRIVY VAULTS AND FOUL-AIR ROOM.

Plans and Specifications.

it passes over these discharges into this shaft, rapidly carries away the watery vapor and the gases produced by their decomposition, and thoroughly dries them. Only about one-sixth of these fæces by weight remains in the vaults after being subjected to this process; and this residuum is, easily and with no offensive odor, shoveled occasionally into baskets and carried out of the building. The practicability of this arrangement cannot be questioned. It has been tested with complete success in private houses and insti-



DESIGN 12 — BASEMENT PLAN

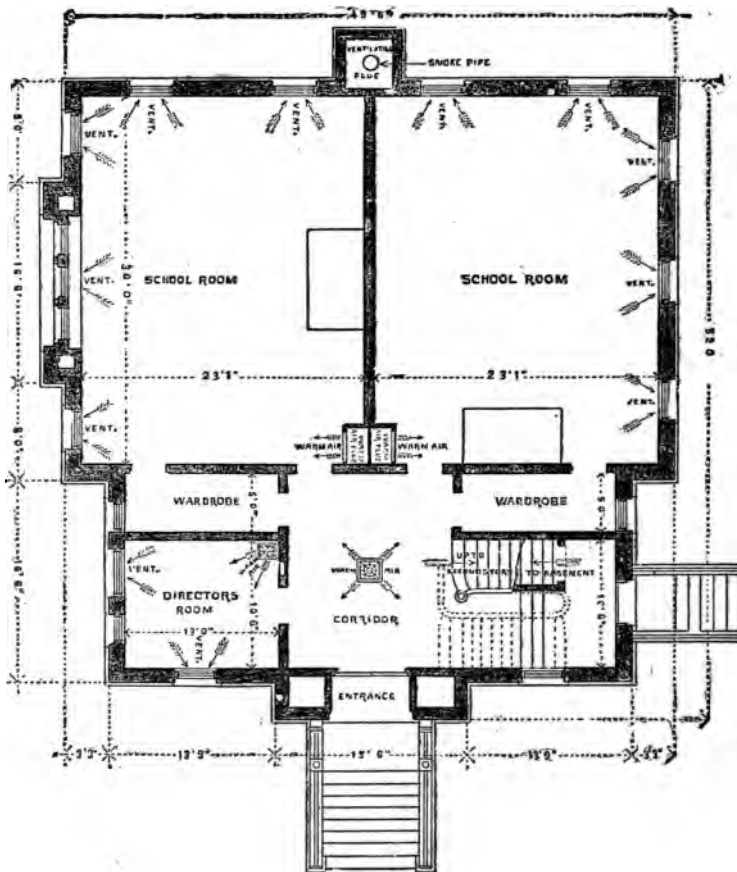
Plans and Specifications.

tutions of learning ; and the testimony is that no impure air, even in the summer season, rises from the vaults and penetrates the apartments of the houses. It is at that time also withdrawn through the ventilating shafts.

SPECIFICATIONS FOR CONSTRUCTION OF THE BUILDING.

Excavating.

The contractor for this work will perform it as required by the plans, elevations, and sections ; use the earth so excavated in fill-



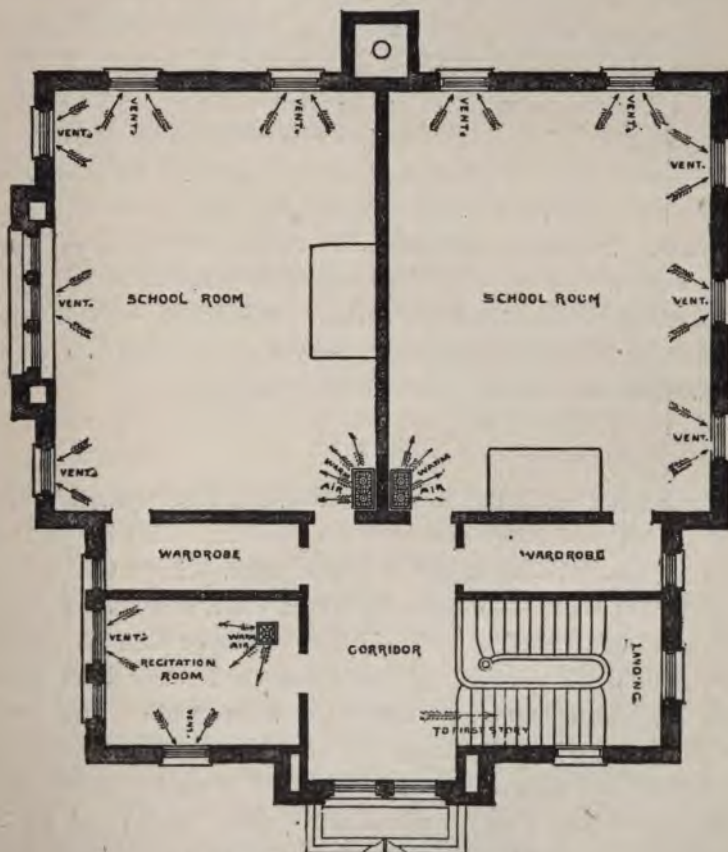
DESIGN 12—FIRST FLOOR PLAN.

Plans and Specifications.

ing and grading around the building and premises, as required ; and have the balance, if any, hauled away from the premises.

Mason Work.

The mason contractor must execute all work in the most thorough and workman-like manner, with strict adherence to the drawings in every particular ; and under the directions of the superintendent, he will build all walls and foundations that may be



DESIGN 12 — SECOND FLOOR PLAN.

Plans and Specifications.

required by plans, starting always from a good and solid footing ; and the proper depth in all cases to be below and out of the reach of frost, whether the plans so indicate or not.

Rubble-stone Work.

All foundations for all walls, piers, areas, etc., to be built of the best large-sized rubble-stone, flat-bedded, and laid in Milwaukee cement mortar,—the stone to be laid close and the joints well filled with mortar and pointed. All of the outside main walls, and all areas, foundations for steps, etc., as shown, to be built of the best rubble-stone to the line of filling at building, and of the size, thickness, etc., as shown by the plans and sectional drawings. The same to be laid up in best Milwaukee cement mortar, closely laid and the joints well filled and neatly pointed. Build all ventilation and other flues as required, or any other work shown by the plans. Put in the foundations for ventilation shaft, warm-air flues, etc., with care and of the proper dimensions required. Build cold-air duct from outside of the building to furnace, build foul-air-chamber, foundation to furnace, etc. ; and complete all of this work in the best and most thorough manner.

Brick-work.

. Furnish and lay in the best manner all brick as required by the plans for all work connected with the building. All brick used to be the best hard-burnt merchantable brick. Select the best for the facing of all outside walls, lay them close, and fill the joints well with mortar, and strike all joints on the outside exposed to view. Build the smoke and ventilator stack and all warm-air flues, etc., and plaster all of these well on the inside. Finish the ventilator top, as shown ; build in all hot-air registers, ventilators, and any and all other iron, wood, or other work connected with the mason work. Turn all arches as required, furnish and fix to place all iron anchors in the floor, ceiling, and roof joist, all girders, and other timbers. Lay lath in all walls that are to be furred

Plans and Specifications.

in the usual way. Build 8-inch brick-work around the furnace, as shown; and complete all other work in a thorough manner. Lay all brick-work in best common lime mortar. Build all walls, and other work plumb, straight, and true, and thoroughly bond the same at every fifth course with a heading course. Finish and complete all work, as shown by the plans, in the most thorough and workman-like manner. The top and bottom course of brick in ornamental bands to be black brick. These are to be same brick as used for facing of walls. These brick to be soaked in hot asphaltum, and laid away to dry before being used. The ornamental bands to be saw-tooth, $8\frac{1}{2}$ inches high, all as shown by the elevations. The mason contractor will set all cut stone and anchor the same properly to place, clean the same down, and leave it all in perfect order.

Cut Stone-work.

Furnish all the cut stone-work required by the plans and drawings. Prepare the same in the most thorough and workman-like manner, and in accordance with the detailed drawings, elevations, plans, etc. All door-sills, area steps, area coping, and flagging, all window-sills, keys, springer blocks and bands, and the water-table to be of the best limestone, or other stone found in the vicinity, properly worked. The tops of all steps, door-sills, flagging, and coping will be finely bush-hammered, with margin draft. All other work to be smoothly rubbed, or finely bush-hammered and margined. All window-keys and springer blocks to be 4 inches thick, with the proper length and height for their places. All window-sills to be 5 by 8 inches, and the proper length. The main water-table to be 6 by 10 inches, and the band on tower to be 4 by 6 inches. All door-sills to be 7 inches thick, with the proper length and width for their places. All flagging to be 4 inches thick, and all coping to be 4 inches thick and 10 inches wide. Area steps to be 8 by 10 inches, with the proper length.

Plans and Specifications.

Lath and Plastering.

All walls that are furred, all wood partitions, and all ceilings in the entire first and second stories will be lathed with a good quality of partially seasoned pine lath, the joints well spread, and nailed with the heaviest quality of lath nails; the joints broken every fifth lath on walls, and every lath on ceiling.

All walls and ceilings throughout these stories will be plastered with two good heavy coats of plastering, as follows, viz.: the first coat to be of brown mortar, put on and finished to $\frac{7}{8}$ -inch grounds, and floated down straight, true, and even; and the same to be of best fresh burnt quicklime, and clean coarse sharp sand, and a sufficient quantity of good sound and long plastering hair, well mixed through the mortar. The finishing coat to be plaster of Paris and white sand, hard-finish, put on sufficiently heavy to cover thoroughly the brown mortar, and troweled down to a hard, smooth, and true surface, and finished in best manner. The hard-finish must not be put on until the brown mortar is thoroughly dry. The plasterer will protect all his work against frost and otherwise; and be responsible for the same, until accepted by the building committee; and he will do all mending and patching after the carpenter and other artisans, and deliver the same up in good condition when finished.

The entire basement ceiling will be lathed and plastered with one good heavy coat of brown mortar, floated down smoothly, and finished closely against the walls are around.

Carpenter and Joiner Work.

The carpenter contractor will furnish all lumber and materials of every kind required for the proper completion of his branch of the work. He will properly work and fix the same to place in and about the building, in the most thorough and workman-like manner.

Plans and Specifications.

Size of Joists and Timbers.

The first and second floor joists to be 2 by 12 inches and set 12 inches to centers. The ceiling joists to be as follows, viz.: over school rooms, 2 by 10 inches, set 16 inches to centers; and over the corridors and recitation rooms, 2 by 8 inches, set 16 inches to centers. The deck joists to be 2 by 10 inches, set 20 inches to centers, well spiked down to the deck frame; the rafters for this roof to be 2 by 8 inches, set 20 inches to centers, well spiked to deck frame, purlins, and wall-plates. The last plates all around the roofs to be one thickness of plank, and one thickness of an inch board, joists well capped, and well nailed together; all well secured to the walls with $\frac{1}{2}$ -inch bolts run through 2 by 8-inch plank built in walls at lower part of cornice. All gable-rafters to be of 2 by 6 inches, set 20 inches to centers. Hip and valley-rafters to be of two thicknesses, of 2 by 12 inches, full length in one piece. Sheathe all roofs with 1 by 6-inch dressed and matched fencing flooring, as nearly seasoned as can be procured. All closely jointed and well nailed.

Shingles.

The steep part of roof and the tower roof to be of best quality of sawed pine shingles, laid 4 inches to the weather, and thoroughly nailed.

Tin-work.

Cover all deck roofs with the best I. C. roofing tin; lock and solder the joints in the best manner; line all valleys and gutters with this tin, 14 inches wide and over, where required. Flash and cover all hips, flash around all chimneys, cover the top of all returns in cornices, flash around all decks, cover the caps of the main entrance, and do any and all other flashing or tin-work required; all with this tin, put on in best manner, finished complete and secure against leakage.

Plans and Specifications.

Galvanized Iron-work.

Furnish and fix to place No. 26 galvanized iron finials, gable on side, and securely fix the same to place; furnish and fix to place properly four 4-inch No. 26 galvanized iron conductor pipes from cornices to ground; furnish and fix to place, with strong and proper iron stays and on the main roof, cast-iron crestings and finials, as shown, and as selected by the building committee.

Studding, Furring, Etc.

All studding to be the size as required on the plans, in one length, of the height of the stories, and placed 12 inches from centers. Plumb straight and true, doubled over all openings and at the angles and corners of the rooms, and doubled and trebled on the sides of all openings, to be trussed, braced, and bridged; and all sized to equal widths, and made straight and true.

Cross-fur on top of all floor joists in all school, directors', and recitation rooms, with 2 by 2-inch strips, placed 16 inches from centers and well spiked down, leaving space for a free circulation of air under the floors to the ventilating flue. Raise the floor joists in the corridors on a level with the top of this cross-furring. Fur all brick-walls, on all stories, with 1 by 2½-inch strips, firmly nailed to the strips in walls, 16 inches to centers, to straighten and make a level wall on the inside where there are breaks in brick-work on the outside. Use 2 by 4-inch for furring, 16 inches to centers, properly secured to place. Cut in strips of 1 by 2-inch stuff between all furring strips on all walls in both stories, on outside walls as follows, viz.: to be one strip 10 inches above top of the floor, and another strip close under each tier of the floor joists and the ceiling joists, to prevent a circulation of the cold air back of the plastering, and also to prevent this cold air from mingling with the air exhausted from the rooms; this to be done by special directions from the building committee or the party supplying the furnace. All other work to be connected with the ventilation

Plans and Specifications.

also so referred. Do any and all other furring as required for the proper execution of the various branches of work.

Grounds.

Put up grounds of $\frac{7}{8}$ by 2-inch pine strips for all finish, bases, wainscoting, etc. Allow no casings, bases, wainscoting, or other finish to go on until all plastering is finished and dry.

Sizing Joists and Bridging.

Size all floor and ceiling joists to uniform widths, and camber them $\frac{1}{2}$ inch in 20 feet, and double them around all stair openings, chimneys, under partitions, etc. Do all framing for the stairway, hot-air and ventilating flues; and hang such headers in iron stirrups as may be required. All floor, ceiling, deck, and platform joists to be bridged with 2 by 3-inch cross-bridging, well nailed with two ten-penny nails in each end of each piece; 12-foot spans and under to have one row; from 12 to 16-foot spans, two rows; from 16 to 22-feet, three rows; and from 22-feet spans and over, four rows.

Floors.

The first and second floors throughout will be double thick. The first thickness laid down to be 1 by 6-inch dressed and matched fencing flooring, seasoned and well fitted, and nailed to place and to be laid as the joists are laid. The top thickness in all corridors, wardrobes, and the stair landing, will be 1 by 2 $\frac{1}{2}$ -inch hard pine, with square edges, and nailed through the face with eight-penny finishing nails, set in $\frac{1}{8}$ inch, and all dressed off smooth and even on top. The top or last thickness of all other floors throughout the two stories to be 1 by 4-inch square-edged B. flooring, nailed and smoothed off the same as the above; and none of this top floor to be laid until the plastering is finished.

Wainscoting.

Wainscot all school, directors', and recitation rooms the height of stool cap of windows; all wardrobes, 7 feet high; all corridors

Plans and Specifications.

and stairway, 4 feet high, with 1 by 3-inch dressed matched and beaded pine ceiling, of a good quality, well seasoned and hand smoothed; all with $\frac{1}{2}$ -round next to the floor, and neatly capped, molded for crayon shelf on top of the cap.

Finish.

All doors and windows in the first and second stories will have a two-member finish, formed of $\frac{7}{8}$ by $5\frac{1}{2}$ -inch O. G. casing and $3\frac{1}{2}$ -inch band mold, of a good quality of seasoned pine stuff. These will be an astragal-mold extending on all sides of the school and recitation rooms, 5 feet above cap of wainscoting, forming space for blackboards on walls not containing windows.

Platforms.

Build teachers' platforms in all rooms as shown, all to be portable, and floored with 1 by 3-inch matched and dressed flooring on good strong frame-work.

Doors.

Make all doors of the form, style, and dimensions, as marked on the plans, of the best white pine, thoroughly kiln-dried. All to be O. G., excepting the outside and vestibule doors, which will have raised moldings and made of two thicknesses of $1\frac{1}{2}$ -inch stuff.

Windows.

All window-frames to be of the size as shown by plans and elevations. All to be made boxed for weights, with $\frac{7}{8}$ -inch pine pulley stiles, and parting beads. Sash $1\frac{1}{2}$ inches thick, with $1\frac{1}{2}$ -inch meeting rails. All windows above the basement will have inside blinds in four folds, with slats and no panels. The blinds are not boxed. All made of thoroughly seasoned and clear white pine, and properly fitted and hung to place.

Stairs.

Build the main stairs as per design, with $1\frac{1}{2}$ -inch ash treads, $\frac{7}{8}$ -inch ash risers, strong timber supports and carriages, 8-inch

Plans and Specifications.

solid turned black walnut newel, $4\frac{1}{4}$ -inch walnut rails, and $2\frac{1}{4}$ -inch turned balusters of black walnut. The landing floored the same as the corridors. Basement stairs to be ceiled upon sides in basement, as shown. All to be finished in a perfect and complete manner. Build step-ladder to roof as required, and build scuttle or scuttles where and as directed.

Door-frames.

Build all door-frames as per plans, with heavy raised moldings to correspond with doors. These doors to swing outwards. All inside door-jambs to be $1\frac{3}{8}$ inches thick, with transoms as shown.

Privies.

Build privies in basement where shown. The partitions to be double dressed and beaded stuff and extend to ceiling. Construct the seats with a lid, the lid to have galvanized iron hinges, and place a board across the top of each seat in such a manner that the lids of seats cannot remain in an upright position. The floor to be 1 by 6-inch C. flooring.

Outside Steps.

Build outside steps, as shown, with $1\frac{3}{4}$ -inch ash or oak treads, $\frac{3}{8}$ -inch risers of the same material, with ash flooring on platforms, buttress rails, etc; all as shown, with strong center supports. All in a complete and finished manner. The rise to each step must not be over 7 inches, and the treads not less than $11\frac{1}{2}$ inches wide.

Hardware Trimmings.

Furnish all locks, butts, bolts, hinges, fastenings, trimmings, etc., of every kind and nature required for the proper completion of the entire building and works. All doors 7 feet and over in height will be hung with three good loose-joint and plain cast-iron butts; and all doors under 7 feet in height with two good loose-joint cast-iron butts. All outside doors will have heavy school-house mortise-locks, suitable for outside doors, with brass works

Plans and Specifications.

and brass fronts, three keys each, and real bronze knobs and trimmings. All inside doors will have a good quality of master-keyed locks, with brass works, brass fronts, and tucker bronze knobs and trimmings. All transoms will be hung at top with two good $2\frac{1}{2}$ by $2\frac{1}{2}$ -inch wrought iron butts, and secured with tucker bronze transom lifters; woolen sacks patented. All sash above basement to be hung with best five-strand Turkey sash cord, and cast-iron weights; and locked with heavy tucker bronze sash locks. All inside blinds to be hung with 2 by 2-inch wrought butts, 3 by 4-inch pairs to the window, and fastened together with wrought flaps, proper size; all with tucker bronze shutter bars, etc., complete.

All wardrobes must have two rows of strong black japanned school-house wardrobe hooks, secured to place with proper sized screws. Said hooks must not be more than 16 inches apart in each row. Teachers' clothes-presses will also have wardrobe hooks of a lighter pattern, and about four in each press. Put tucker bronze sash lifts and eyes on all sash above basement.

Cornice.

Build all main cornices on all sides of the building and tower, as per elevations and sections, with brackets, moldings, etc., as shown, of a good quality of seasoned pine lumber. The soffit will be of 1 by 3-inch beaded ceiling, and the frieze will be of wide stuff, so as to have no joints in sight.

Tower.

Build and construct the tower as shown. All lumber to be thoroughly seasoned. Construct the bell deck and cover the same with best L. C. roofing tin, and make same perfectly water-tight. Construct all panel-work, etc., in a first-class manner, and plow all joints.

Furnace and Furnace Work.

The building will be warmed by one of Hawley's Tubular Masonry Furnaces, sold by the Ruttan Manufacturing Company, 68

Plans and Specifications.

Lake St., Chicago, Ill. The contractor for this work will furnish and fix to place, in working order, this furnace, together with all tools and implements thereto belonging. He will also furnish and fix to place the smoke-pipe from the furnace, and extend the same to and connect with the vertical smoke pipe in the ventilating shaft. This horizontal smoke-pipe from the furnace will be 14 inches in diameter, of No. 16 black iron. All joints must be thoroughly riveted and well hammered together. The pipe must be made in sections, from 8 to 12 feet in length, with close fitting joints; and there must be two or three soot openings in the lower side of the pipe, so it can be cleaned at will,—these openings to be made with sliding covers. The contractor will also furnish and fix to place the vertical pipe in the ventilating stack. This pipe to be made of No. 12 black iron, put together in sections and thoroughly riveted. It will start from a point 4 feet 6 inches above basement floor, and must extend up one foot above the top of the brick-work, and properly stayed to the center of the shaft with strong iron stays. These stays to be made so that the pipe could be removed with ease in future, if desired. At the lower end of this upright pipe, there must be a soot opening, so that it can be opened or closed at will. The contractor will also furnish and fix to place, as the mason work is being built, all of the valve registers in each and every room above the basement, and the open scroll fronts with pulleys, and chains for opening and closing these valves. These are also manufactured by the Rattan Company. The size of these valve registers to be about 20 by 28 inches, or as hereafter ordered by the building committee. He will also furnish the floor registers in recitation and directors' rooms, size about 10 by 14 inches or as ordered. He will furnish and fix to place in each school room about 12 feet of cast-iron perforated ventilating base, and also in recitation and directors' rooms. He will also furnish one floor register with border in the first story hall over the furnace; also a double galvanized iron register box, filled around with bricks and mortar,

Plans and Specifications.

together with all collars, thimbles, etc., required in all parts of this work. Furnish the same in every particular as directed, and in the best manner.

Furnish wire-screens, of about $\frac{1}{4}$ -inch mesh and 3-32-inch wire, for windows, where cold air is taken into the furnace, and fasten the same outside of the sash.

Painting and Glazing.

Paint all exterior wood and metal work that is usually painted, with three good heavy coats of paint. Finish in stone-color all cornices, window-frames, front entrance, buttress of steps, conductor pipes, hips, gables, etc. Finish cresting and the outside of all sash in dark bronze green. The first coat on all metal work to be of metallic paint. All inside hard wood-work to be oiled with three heavy coats of raw linseed-oil. The outside and vestibule doors and the frames to be grained in imitation of dark English oak, and neatly shaded and varnished with two coats of good varnish.

Inside Work.

All inside blinds to be oiled with two good coats of raw linseed-oil and one coat of shellac. The stair rails, balusters, and newell to be oiled and filled in the usual way. All other inside work in the two stories to be grained in imitation of medium dark oak or two heavy coats of lead and oil paint, and neatly shaded and varnished with two good coats of varnish. All work to be well sand-papered and puttied on the priming, and all finished in the very best manner. All lead and oil used to be the best quality. All basement frames and doors, etc., and privies, to be painted two coats drab-colored paint.

All glass throughout the entire building to be the best quality of single thick American glass. All set with care, properly sprigged and puttied, and left whole and sound on the completion of the entire works.

Plans and Specifications.

Blackboards.

Furnish and form liquid slating blackboards, five feet high on the sides of the school and recitation rooms, not containing any windows. Put on Wilder's slating in three heavy coats of black and green; and worked down to a true and perfect surface with emery paper after each of the first and second coats.

Bill of Principal Materials.

- 160 pieces, 2 by 12 inches, 24 feet long.
- 80 pieces, 2 by 12 inches, 22 feet long.
- 65 pieces, 2 by 10 inches, 24 feet long.
- 35 pieces, 2 by 8 inches, 22 feet long.
- 25 pieces, 2 by 10 inches, 20 feet long.
- 80 pieces, 2 by 8 inches, 20 feet long.
- 10 pieces, 2 by 12 inches, 20 feet long.
- 85 pieces, 2 by 8 inches, 14 feet long.
- 125 pieces, 2 by 4 inches, 14 feet long.
- 85 pieces, 2 by 6 inches, 14 feet long.
- 6,500 feet, flooring for floors.
- 4,000 feet, fencing flooring for roof.
- 1,400 feet, 2-inch furring for walls.
- 3,500 feet, beaded ceiling for wainscoting.
- 25,000 shingles.
- 500 feet, $\frac{7}{8}$ by 2-inch strips for grounds.
- 1,800 yards of plastering.
- 25 cords of rubble-stone.
- 180,000 brick.

5. *Five-room School-house.*—The only design with this number of school rooms is found below. It was donated by Messrs. Edbrooke and Burnham, architects, of Chicago, Illinois. It was first prepared by them for the school-district in the village of River Falls, Wisconsin, where the erection of the building was completed in 1880, at the cost of \$12,000. This does not include any of the heating apparatus, or the furniture.

Plans and Specifications.

It is truly a magnificent structure, striking in appearance, commodious in all its arrangements, and corresponding in very many points to the best recognized principles of school-house architecture. It stands on a slight eminence facing the south. It has separate entrances on the sides for girls and boys, and accommodates in its school rooms 275 pupils, in the three grades of a public school.

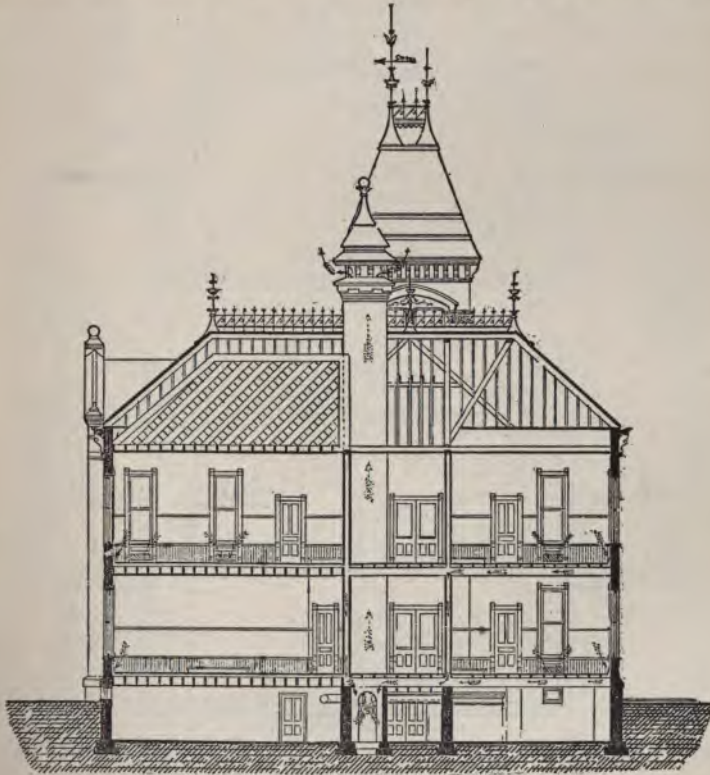


DESIGN 13—PERSPECTIVE VIEW.

Should a fire ever occur in the house affecting either stairway, the school can readily escape from all the rooms through the

Plans and Specifications.

other stairway. Passage is easily made to the different portions of the house through the corridors and the stairways, and to the out-buildings in the rear by means of doors in the back ends of the entrance halls. The front doors could be set, without injury



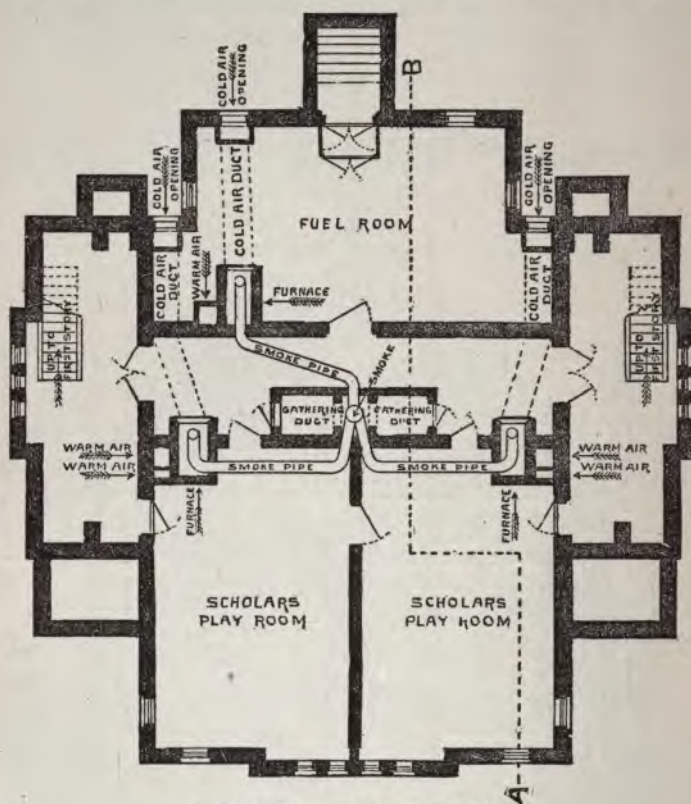
DESIGN 13 — LONGITUDINAL SECTION.

to the architectural appearance of the house, so far within these halls that the steps for entrance could be placed in them under cover. It will be observed that all the doors by which the school enters the building and the rooms on the first and second floors, open outwards.

The Ruttan system of heating and ventilation is in operation

Plans and Specifications.

in this building. An admirable feature of this system is the location of the smoke and ventilating shaft in the center of the house, where its walls are not cooled by exposure to the external air.



DESIGN 13 — BASEMENT PLAN.

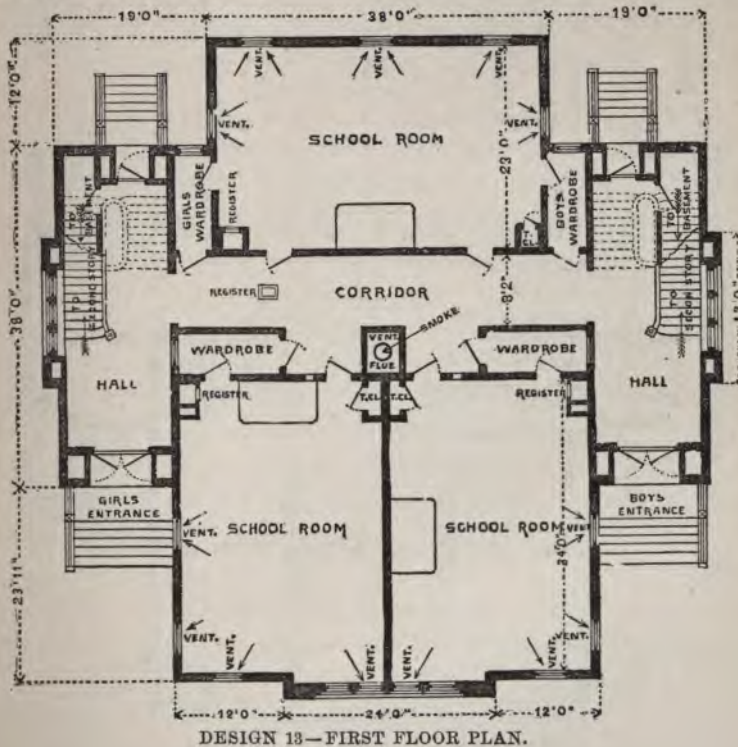
The height of the basement story is 8 feet 3 inches in the clear ; of the first story, 14 feet 5 inches ; and of the second story, 16 feet 4 inches, and 14 feet 3 inches. The height of the tower and other parts of the building are as shown in the prespective and section.

Plans and Specifications.

SPECIFICATIONS FOR THE CONSTRUCTION OF THE BUILDING.

Description.

This building to be a frame, veneered with brick above the basement, and the latter of stone. It is to be two stories in height, with a basement. For the arrangement and size of the different parts, reference must be made to the plans herewith published. Should these parts be figured, such figures will be taken as the correct measurement, in preference to the scale to which they are drawn.

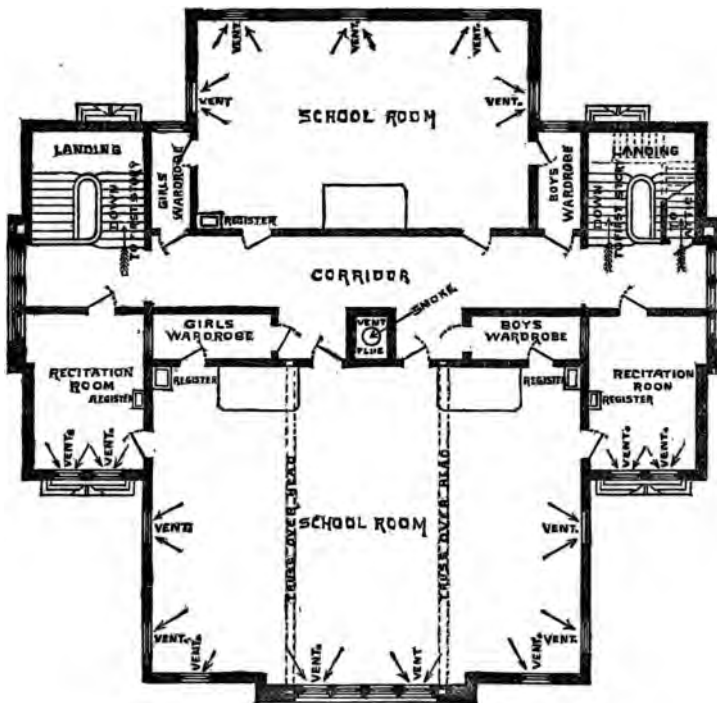


Excavating.

The contractor for this work shall take down and remove from the premises any old buildings, fences, trees, stumps, stone, or

Plans and Specifications.

other impediments that may be thereon. All rubbish, as well from these as from any superfluous earth that may come out of the basement and foundation, unless needed in filling around the building, shall be carted away from the premises, together with all rubbish that may accumulate during the progress of the work. He shall dig out for the basement story foundations, areas, drains, piers, foundations for steps, and all other works requisite. The excavation for the footings of the basement floor shall be at least 18 inches in depth. He shall thoroughly pack the ground forming the beds of the trenches for the foundations, and, if neces-



DESIGN 13 - SECOND FLOOR PLAN.

sary, ram them with a heavy instrument. He shall also fill in around the foundations, after they are built, and thoroughly ram this filling down. He shall also do all grading necessary to con-

Plans and Specifications.

form to the graded lines established on the plans, with the earth removed from the various excavations. He shall, at all times, protect the walls and foundations from frost, rain, or otherwise. And he is to leave the ground wholly free from all useless soil or other material. For the size and depth of all foundations and excavations, refer to the plans and section.

The contractor shall be held responsible for all accidental damages caused by any carelessness on the part of himself or workmen, is not properly protecting his works during the construction of same; and all works under his contract shall be wholly at his own risk until fully completed and accepted.

Concrete-work.

All of the main interior and exterior walls of the building will have the lower course of their foundations built of concrete, 12 inches in thickness, by the width as shown on the plans. This concrete to be composed of good clear broken stone, not larger in size than a hen's egg, clean coarse sharp sand and fine gravel, and the best quality of Milwaukee cement. This concrete shall be prepared and placed in the trenches as follows: The trenches shall be made of proper width for the concrete, and if this cannot be done, then form the proper width by placing boards upon their edges; then in the trenches place about 4 inches of broken stone, spread evenly over the surface; then ram the same down thoroughly with a heavy instrument made for that purpose; then in a larger box close by or overhanging the trench at the point just where the cement should be used, take one part fresh ground Milwaukee cement and three parts coarse sharp clean sand and fine gravel, mix the whole thoroughly together in a clean state; then add quickly sufficient clean water to reduce to a thin mortar; then run this mortar over top of the broken stone in the trenches, thoroughly filling all interstices; then spread 4 inches more of the broken stone upon that already laid; then run in the cement, as before, until

Plans and Specifications.

the 12-inch course is completed — each course above the first must be gently tamped to place. When the full course is completed in thickness, it must remain until the cement is quite hard, before the stone-work is started; and must be protected from injury of any kind, and the earth filled in closely around the same. This cement-work should be covered from the sand and air as much as possible, and in no case should traveling over the same be allowed, as that will break the bond and render the cement worthless.

Stone-work.

All of the stone used in the walls and foundations on top of the concrete-work to be the best quality found in the vicinity. All stone-work to be laid in the best common lime mortar, the joints well filled and pointed, and all verical joints well slushed up; and large flat stones must be selected for the first course above the concrete. Build all walls, piers, areas, and other work in accordance with the plans and section. Break joints and bond well with stone extending through the wall in every other course or at intervals not farther than two feet apart. All work below the surface of the ground or out of sight to be the best rubble-work; and on all sides of the building above the surface of the ground and exposed to view, shall be range work, laid in true and regular courses from 9 to 12 inches in thickness, of uniform and proper lengths, with pitched face and with margins around all openings and all jambs margined and bush-hammered; this range work to be laid with regular bond, close joints, well filled with mortar and neatly pointed. All piers between windows and elsewhere shall be built in a proper manner with blocks extending through wall and neatly worked on the outside, corresponding with the other work. The mortar joints in all outside walls from a point one foot above ground line to one and one-half feet below ground, shall be raked out with an instrument to a depth at least 2 inches, and then thoroughly filled and pointed with soft cement mortar, the cement must be slushed in close and full so as to pre-

Plans and Specifications.

vent moisture from penetrating. All walls and work must be carried up level, true, and uniformly; and all of this work must be first-class in every respect.

All cut stone must be properly set in connection herewith by the mason contractor; all lintels, wood, brick centers for arches, and other wood-work shall be furnished by carpenter; and the mason must see that the same are properly set and fixed to place before building them in the wall. All window and door-frames must be accurately set to place and thoroughly braced and supported there until built in; and the same must be plumb, square, and out of wind.

The stone-mason contractor must build all areas, foundations for steps, walls on the sides, and ends of the drive-way in the rear of the building, foundations for cold-air ducts, and any and all other works that may be shown by the plans; and fully complete the same in a thorough and workman-like manner. He will also do the concreting of the basement floors, the same to be about 4 inches in thickness, composed of coarse gravel and the best fresh ground Milwaukee cement, put down and finished in a similar manner to the foundation concrete work; but this floor work shall have at least one inch of cement, gravel, and sand over the top of the coarse gravel, so as to make a smooth, level, and true surface.

The bottom of cold-air ducts shall be finished the same. Nothing but the best cement must be used and must be entirely free from lime mortar; the coarse gravel must be well rammed to place before any cement is spread, and the cement must be run in through the gravel, so as to thoroughly fill all interstices and to make a thoroughly solid mass.

Cut Stone-work.

All of the cut stone trimmings, as shown by the plans and required for this building, to be of the very best quality of stone found in the vicinity. All to be properly worked, and to consist

Plans and Specifications.

as follows, viz : Of all door and window-sills, water-table extending around the entire building, all keys and springer blocks, belts, bands, and such other work as shown on the plans. All work to be finely bush-hammered centers, with a neat $1\frac{1}{2}$ to $\frac{1}{4}$ 2-inch margin drove around the same ; all to conform strictly to details on plans ; all with true and full surfaces and corners, and with neat and closely fitting joints ; all to be backed off to the proper thickness for the place where used ; and all this work must be properly anchored to place.

Brick-work.

All outside walls of the building shall be veneered with four inches of the best quality of stock brick, manufactured in the vicinity. This veneering shall start from on top of the main water-table at first floor, and extend up and back of main cornice, pediments, and other places, as shown ; it shall also extend down to the platforms of the two rear entrances which extend below the line of main water-table. All to be as shown on perspective, section, and plans. All brick to be laid in true and level courses with plumb bond, laid in the best common lime mortar, and the joints neatly struck and pointed. All vertical joints and the space between the brick and the boards thoroughly slushed with soft mortar. All of this brick-work shall be thoroughly anchored to place, with thirty-penny spikes, driven one-half their length through the sheathing and into the studding ; every fifth course of brick shall be anchored, as above, with the spikes driven alternately in every other stud,—the spike must be driven hard down on the top of the course of brick to be anchored.

The jambs of the large windows, as shown, shall be carried up with a 8 by 8-inch pier, to form an 8-inch reveal, as shown on the floor plans. All window and door-jambs must be anchored as above, with the spike driven two inches from the edge of the brick continuously at every fifth course in height.

Plans and Specifications.

The upper and lower courses of the belts at top of first and second story windows, shall be black brick,—the brick used for this work being the same kind as for the veneering of the walls. The manner in which they are blackened shall be by dipping them in hot asphalt and carefully laid aside to dry before being used.

Form all ornamental work in the brick on all sides, as shown by the perspective; the belts at windows shall have one course of brick, set upon their ends between the two courses of black brick and laid angling,—this belt must be well anchored with spikes, as above.

Vent-stack and Warm-air Flues.

Build the vent-stack and warm-air flues as shown on the plans; build them with the best hard-burnt common brick; lay the joints close, and fill them well with mortar; and strike and point neatly all joints on the inside of the shaft and flues. They will not be plastered on the inside. Carry up all these shafts plumb, straight, and true; rack the warm-air flues over and away from the walls, while passing through the second floor joists, sufficiently to allow the register to stand away from the wall a little; carry the vent-stack through the roof and face the same above the roof with same kind of brick as used in veneering, and finish in all respects as per design. Build in the supports, and thoroughly and properly secure the galvanized iron top to place.

Build the cold-air ducts, as shown on the plans and sections, with the best hard-burnt common brick, arch the tops, etc., and complete in all respects as required. Build fresh-air receivers as shown on the plans, the walls of the same must extend to the ceiling of the basement and must be as per special directions of the furnace men. Incase all hot-air furnaces in best common brick-work, as shown on the plans, and as per special directions of these men. The contractor for this work shall build in any and all iron or other work that may be connected with his branch,

Plans and Specifications.

such as smoke-pipe, supports in vent-stack, dampers, doors, etc., as may be shown or directed. Complete in a thorough and work man-like manner all work that is shown on the plans, or as directed by the superintendent, and to his entire satisfaction.

Deafening Mortar.

The mason contractor shall furnish and spread to place the mortar for the deafening of the entire first and second floors; the same to be good clean mortar, spread $1\frac{1}{2}$ inches in thickness between the strips upon the first thickness of floor, said strips shall be $1\frac{1}{4}$ inches thick, and shall be filled flush to the top of same with mortar, which must extend over the entire surface and be finished closely against all walls, partitions, etc., and to be put down when ordered by the carpenter, and in a first-class manner.

Lath and Plastering.

All walls and ceilings throughout the first and second stories to be sheathed with the best quality of seasoned pine lath, free from bark or other defects, laid sufficiently open to give the mortar a good clinch,—say at least $\frac{3}{8}$ of an inch. The nails must be three-penny fine and must be firmly driven, and all lath secured to each joist and stud or furring strip. Each lath to break joints on the ceiling, and every five on the walls. Brick flues and vent-stack will require no lathing. The entire basement ceiling will also be lathed as above.

The mortar is to be made of clean coarse sharp sand and the best quality of lime; and for each barrel of lime, a bushel of good plastering hair is to be used. The lime is to be well slacked and run through a fine sieve, and much care be taken that the hair is not used in slacking the lime. The mortar to be put on in heavy coats to $\frac{7}{8}$ -inch grounds, made straight and in every respect finished in a thorough manner. Should the hard-finish show fire cracks, stains, or blisters, or the lime in the brown mortar slack so as to break through the surface, it must be condemned as bad work. The plasterer shall not proceed with the

Plans and Specifications.

plastering during frosty weather, except at his own risk, unless by special agreement. Every part of this work shall be done in the best and workman-like manner.

All walls and ceilings throughout the entire first and second stories, shall be plastered with two good coats of plastering, as follows, viz.: The first to be of brown mortar, and the last of plaster of Paris and white sand, hard-finish. From top of wainscoting, and extending four feet above the same, between all doors in all school-rooms and in the assembly room, the best quality of lamp-black shall be used in the hard-finish, sufficient to form a good black surface for blackboard, which must be finished true and even to a straight line on top. Basement ceiling throughout will have one good heavy coat of brown mortar, floated down to a smooth and finished surface. The contractor for this plastering work will do all mending and patching, made necessary after the various artizans, and upon the completion of the carpenter and joiner works; he will remove from the premises all rubbish and refuse material, also all tools and scaffolding upon the close of his work; he will also clean out all parts of the building and sweep the floors after each coat of mortar; and shall be responsible for his work until it is accepted. One coat of plastering must extend down to the floor back of all wainscoting.

Carpenter and Joiner Work.

All the materials of every kind are to be good of their kind and suitable for the place where used. The finishing lumber is to be well seasoned and kept dry until put up. All inside finishing lumber to be thoroughly kiln-dried. No lumber which is to be used will be considered properly worked if put up as it comes from the mill, but it should be hand-dressed or smoothed before it shall be put up. All moldings and quirks of beaded work shall be thoroughly sand-papared. Any part of the work shown on the plans or fairly implied thereby, and not definitely specified herein, is to be considered a part of this specification.

Plans and Specifications.

The lumber used in the construction of this building to be of pine and of a good quality, and free from defects of any kind that will materially impair its strength or durability; and in all cases to be suitable for the place where used. All timber-work, sheathing, and all other material to be as well seasoned as can be procured; the joists, studding, and such other lumber as required are to be sized to uniform width, and made straight and true,—excepting joists which are to be cambered about $\frac{1}{2}$ inch in 20 feet—the edges planed true and square.

Timber and Scantling.

The first floor joists and studding shall rest upon a sill formed of two thicknesses of 2 by 10-inch, joints well broken and lapped and thoroughly spiked together with twenty-penny spikes. The joists and studding shall also be well spiked together, and both well spiked down to the sill.

Studding.

The main outside studding will be 2 by 6 inches, placed 16 inches from centers, around the entire building. Their height shall be in two lengths, the first extending to under side of the second floor joists, including a double 2 by 6-inch cap, that the second floor joists and upper section of studding will rest upon said cap; and the section of the studding shall extend up to the wall-plates, and their foots rest directly over those below. All studding must be put up plumb, straight, and true. Frame properly around all windows, leaving proper space for weights, etc.; properly truss over all openings, and prepare all parts to receive all work connected herewith. All corners and angles in outside walls of the building shall have a 6 by 6-inch stud, made by spiking 2 by 6-inch thoroughly together; double the studding around all the large windows and doors; and place in the walls with the studding a 6 by 6-inch timber under the end of each truss, made of 2 by 6-inch stuff spiked together, and continue them down to the basement wall.

Plans and Specifications.

All the outside walls upon the first and second stories shall be thoroughly braced from all corners toward the centers, at an angle of 45°, or as near that as can be done, by starting at the sills on first floor or from on top of caps on second floor, and cutting in closely, with a neat fit, pieces of 2 by 6 inches, between the studding, and nailing each piece thoroughly with three ten-penny nails in each end of each piece, the nails to be driven at the proper angle and at the best point to do the most good, and driven close and firm to place. The sheathing must be thoroughly nailed to these braces as well as to the studding, with ten-penny nails.

Joists.

First floor joists to be 3 by 12 inches, placed twelve inches from centers in school rooms, and 2 by 12 inches, placed 12 inches from centers in corridors, etc. Second floor joists, 3 by 12 inches, placed 12 inches from centers in the school rooms, and 2 by 12 inches, placed 12 inches from centers in corridors and small rooms; joists of stair platforms to be 2 by 8 inches, placed 12 inches from centers. Ceiling joists over large school rooms on second floor, and that rest in the trusses to be 2 by 8 inches, placed 16 inches from centers; all other ceiling joists 2 by 10 inches, 16 inches from centers; rafters of main roof, 2 by 6 inches, 20 inches from centers; deck-rafters 2 by 10 inches, 20 inches from centers; deck beams, 4 by 6 inches; roof braces, 4 by 4 inches; bell deck joists in tower, 2 by 10 inches, 12 inches from centers; tower studding and rafters, 2 by 6 inches, 16 inches from centers. All main inside studding, 2 by 6 inches, 16 inches from centers; and wardrobe studding 2 by 4 inches, 16 inches from centers. All other timbers as may be required to be, as ordered or shown.

Lintels over basement windows, supporting the ends of first floor joists, shall be 6 by 8 inches, resting each end upon the 6-inch wall plates on top of inside walls, 2 by 8 inches double; and lintels over inside basement doors, 8 by 10 inches, doubled.

Plans and Specifications.

Bridging.

All joists to be well bridged with 2 by 4-inch bridging, cut at the proper angle and well secured to place with 3 ten penny nails in each end of each piece. All school room joists will have three rows of bridging. All corridors and stair platforms will have one row, as above. The ceiling of the cross corridor in the basement will be furred with 2 by 4-inch studding on their edge, placed 16 inches from centers. The ceiling of the basement under the school rooms, and of the three school rooms on the first floor, and the cross corridor, shall be furred crosswise of the joints with 2 by 2-inch furring, all well secured to place, 16 inches from centers, with twenty-penny nails in each joist. The school room ceiling on the second floor will be furred with 1 by 2-inch strips, 16 inches from centers. The furring of the ceiling in the basement and on the first story, in the manner above described, is to allow a free passage of air from the rooms under the floors to the foul-air receivers, though the ventilation registers or bases under the windows in each room; and the whole channel and outlets for the air must be unobstructed, and each room have its own independent outlet to the receivers in the basement. The ventilation from first floor rooms shall pass separately along under the floor of each room to the receivers. The air from the large front room on the second floor will pass under that floor in the same way, and down the partition dividing the wardrobes from front school rooms on the first floor. The course of the air from the back room, second floor, shall be under the floor and down the partition dividing the back room, first floor, and corridor, and thence under first floor corridor to receivers. The entire space between the studding of these partitions and the way under the floors must be free and unobstructed. Where the joists rest upon a partition that conducts the air down, as does the partition between the back room, first floor, and corridor, they must then rest upon a 1 by 6-inch rib framed in the studding to leave an outlet for the air. Just above the ventilating base under all

Plans and Specifications.

windows and just on top of the joists, elsewhere around the entire outside walls of the building on both the first and second stories, cut in closely between the studding pieces of 2 by 6 inches, and fit them closely so as to shut off all dead or chilled air between the studding from circulating with the air under the floors.

All inside partitions must be braced in a manner to the outside walls as above specified. All towers, roofs, and all other parts of the entire structure shall be braced and strengthened as directed by the superintendent.

Trusses.

Build the two lattice trusses as shown on the section, the web of said truss to be formed of 1 by 12-inch latticing, placed 12 inches from centers, well nailed at their ends and intersections with ten-penny nails. The tie and strain-beams and struts will be formed with 2 by 12-inch stuff on each side of the latticing joints, well broken. The ends of the latticing must be filled in between them solid with 1 by 12-inch blocks. These and the latticing, as they are laid in place, must be well spiked with ten-penny nails to the 2 by 12-inch stuff after the truss is together; then spike with twenty-penny spikes on the lower edge of the tie-beams 2 by 4 inches, thoroughly breaking joints with the 2 by 12-inch stuff. These 2 by 4-inch beams are to rest the ceiling joists upon; and these trusses must be braced in position with proper lateral braces, as directed.

There must be properly executed all work connected with the framing and timbering, and the whole inwrought into the building in the most thorough and workman-like manner; and the whole secured to place in the most thorough manner, with spikes and nails suitable for the place where used.

Frame properly around all stairs, ventilation and warm-air flues, and other required places, with double headers and trimmers properly framed together.

Plans and Specifications.

Sheathing.

All the exterior walls and the roofs of the entire building shall be sheathed with good sound well-seasoned dressed common boards, closely jointed and properly fitted around all openings, and well nailed with ten-penny nails. In fitting this sheathing on the walls and roof, the top edge of the boards shall be the tongue-edge; this edge shall be blind-nailed or nailed through the tongue and driven down closely, and the lower edge nailed through the face, each edge to be nailed to each studd. This sheathing must extend to top of wall-plates. Tower to be sheathed in the same way.

Cornice.

The main and deck cornice to extend around entire building, as shown, of clear and well-seasoned pine lumber, and in accordance with the detailed plans, with proper lookout brackets and supports. The pediments will be galvanized iron, and as hereinafter specified.

Towers.

Build and complete the towers of wood, all in accordance with perspective and section, of the most thoroughly seasoned pine lumber and of a good quality.

Hoods and Steps.

Build the hoods over the front and side doors to the first floor with a good quality of seasoned pine lumber and in accordance with detailed plans. Build the four flights of steps as shown, with $1\frac{1}{2}$ -inch oak treads; buttress rails to be paneled on the sides; all to be properly supported upon strong timber-work, and complete in all respects. The treads must have a pitch forward of $\frac{1}{4}$ inch in the width of each tread.

Shingles.

The entire main roofs of this building shall be shingled with the best brand of sawed pine shingles that can be had in the vicinity.

Plans and Specifications.

They must be laid not more than $4\frac{1}{2}$ inches to the weather, and well nailed to place, with joints well broken, with straight and true courses, the valleys of proper size and cut straight and true, the hips finished by alternate lapping, and a strip of tin laid with each course and covered by each course. Finish carefully and properly around vent-stack, towers, and back of all pediments or other places; and properly flash and counter-flash with best I. X. tin, painted on both sides with one good heavy coat of mineral paint; flash and finish in the best manner and properly around the decks.

Shingle the tower roofs with the best brand of 6-inch pine stock shingles, laid not more than 5 inches to the weather, all properly nailed, laid in true and perfect courses, with belts of ornamental shingles; hips finished the same as above specified, with all required flashings, etc. Clean down all of the roofs and leave them in a thoroughly finished state.

Galvanized Iron and Tin-work.

Make and fix to place, of No. 24 galvanized iron, the pediments, cornices, finials on the towers, and the ventilator top, all in accordance with the perspective and section, and all properly supported to place with strong iron supports. Furnish and fix to place four conductor pipes, 5 inches in diameter, of No. 26 galvanized iron, properly secured to the building with strong expansive hooks soldered to the pipes; extend these pipes down and connect with a sewer at the top of the ground, with a flange over end of sewer pipe, cover the tops of the pediment, cornices, and all deck-roofs, line all gutters and valleys, cover the bell deck, cover also tops of cornice of towers, and do all flashing and all the other required tin-work of best I. X. tin, all put on in the best manner, with closely soldered joints. All tin-work to be painted on the under side with one good heavy coat of best mineral paint, before the same is laid; paint also all tin-work the same on top side, that cannot be painted after the other work is completed around it.

Plans and Specifications.

Furnish and fix to place, in the most substantial manner, all crestings of cast-iron, and such finials as are shown, and complete all of this metal work in a thorough and workman-like manner. Roof of hoods will also be covered with tin as above.

Window and Door-frames.

Build all window and door-frames as per design, and in accordance with detailed plans, using the best and most thoroughly seasoned materials for the same. The pulley stiles of all windows shall be of white ash, and the frames of all windows above the basement shall be made with boxes for weights.

Floors on First and Second Stories.

All floors throughout to be laid double thick, the first or lower thickness to be of 1 by 6-inch dressed and matched fencing, well seasoned when laid, the same to be closely pointed and well nailed. This first thickness can be laid when the joists are laid. On top of this first thickness of floor there will be 1½ by 2 inch strips nailed, running same way as joists, and nailed down through rough floor into joists. Then after the deafening mortar is laid and dry, the top thickness of floors to be laid, which shall be 1 by 4-inch dressed matched soft clear pine B. flooring, thoroughly blind-nailed to place. This top floor shall not be laid until last coat of plastering is on and thoroughly dry. Bell deck in tower will have a floor of one thickness of 1 by 6-inch B. flooring; stair platforms will be floored with one thickness of 1 by 4-inch ash flooring.

Grounds.

Put up grounds, ¾ by 2 inches, for the finish of all doors, windows, wainscoting, bases, stairs, and other work; the same to be put up plumb, straight, and true, and securely nailed to place, and to remain there for the inside finish to be nailed to it. They must be placed so that this finish will cover them at least one inch.

Plans and Specifications.

Wainscoting.

All corridors, halls, and stairways, also all wardrobes, school rooms, library and recitation rooms on the first and second floors, shall be wainscoted with a good quality of 1 by 4-inch clear seasoned dressed matched and beaded pine ceiling, with quarter-round mold next to floor, and a neat cap at top. The height of wainscoting in the various parts to be as follows to the top of caps: in all school and study rooms, the height of the window stools; in all corridors and stairways, 5 feet; in all wardrobes, 6 feet. In all rooms the cap of wainscoting shall be made 3 inches wide beyond wall, and coved out under blackboards to form crayon shelf.

Furnish and secure to place, after the plastering is completed, an astragal-molding, covering the joists at top of the blackboards on all sides of the rooms where there are no windows and where the black mortar is separated from the white. This molding to be about 3 inches in width.

Inside Finish.

All doors and windows, throughout the first and second floors, shall be finished with a neat pilaster finish, $1\frac{3}{8}$ inches in thickness, of clear and seasoned pine material. Under each window in the school, class, and recitation rooms, there shall be a cast iron perforated base for ventilation. Between this base and the window-stool there shall be a panel, as shown, of the same kind of ceiling as the wainscoting. Under all windows the wainscoting shall be the same as in other parts of the rooms.

All door-jambs shall be of a good quality of $1\frac{3}{4}$ -inch pine stuff, rabbited to receive the doors, only such doors to have transoms as are shown.

Sash.

All sash to be $1\frac{3}{4}$ inches thick, of pine. All those in the windows of first and second stories to be hung with best cord and cast-iron weights

Plans and Specifications.

Inside Blinds.

All outside windows on the first and second stories shall have inside slat blinds, with four folds to each window, and cut at meeting rail of the sash. All to be fitted and hung to place in best manner, and all made of best clear white pine.

Doors.

All doors to be made in the most thorough and workman-like manner, of the best quality of thoroughly kiln-dried clear white pine. All inside doors to be $1\frac{3}{4}$ inches thick, O. G., and 5 panels. The main front entrance doors to be in two thicknesses of $1\frac{3}{8}$ -inch stuff. The rear exit doors to be $2\frac{1}{4}$ inches thick, and same as front doors, but with raised molding outside; the doors leading from stair hall to cross-corridor on each floor, shall have glass in upper panels. Provide all doors shown by the plans, and fit and hang them in a neat manner.

No trimmings or finish shall be put up until the plastering is completed and thoroughly dry.

Stairs.

Build all stairs, as per plans, with $1\frac{1}{4}$ -inch ash treads, $\frac{3}{8}$ -inch pine risers, all tongued together in the best manner, and the treads and risers housed into the wall strings, and thoroughly wedged and glued; all to be properly supported upon good strong timber-work, and put up in the most substantial manner. Face strings of main stairs to be covered by the ceiling under rail. Rail to be $4\frac{1}{2}$ -inch O. G. black walnut, grooved on the under side, and ceiled from rail down to under side of carriage with 1 by 3-inch double-faced dressed matched and beaded pine ceiling, with moldings finishing the lower edge of this ceiling. Newels to be of solid walnut. All of this material to be thoroughly kiln-dried and put up in the very best manner.

The wainscoting must extend up and around the stairs, with *easements* at each starting landing and platform. All moldings

Plans and Specifications.

for all easements must be wrought out of the solid to the right curve.

Stairs to basement with treads, the same as main flights. They are to be boxed on the sides by partitions, which will be ceiled the full length and height on both sides. All stairs to be as per plans. Stairs to tower and attic to be a plain flight of box stairs, $\frac{7}{8}$ -inch treads and with risers and stringers.

Hardware and Trimmings.

The contractor for this work shall furnish and provide all hardware trimmings of every kind and nature that may be required for all sash, doors, blinds, or other work. The same must be fixed to place in the most thorough and workman-like manner, and in all respects must be suitable for the place where used. All inside doors on the first and second stories shall be hung, each with three good loose-joint plain cast butts, 6 by 5 inches — 5 inches high and 6 inches wide — well secured to place with suitable screws. All outside doors of first floor will each be hung with 5 by 5-inch black japanned butts, three to each door; doors hung to swing outward. All basement doors hung with two good loose-joint plain cast-iron butts to each door, 4 by 5 inches. Double doors in basement will have good strong wrought iron top and bottom bolts, 6 inches at bottom and 16 to 18 inches at tops. Double doors, first and second stories, will have good strong top and bottom bolts, tucker bronze finish, and of suitable lengths, and properly secured to place.

All doors entering rooms direct from corridors will have master-key locks, with brass faces, bolts, and works. Said locks to be 5 inches. All other inside doors will have locks the same as above, but without master-keys. All main front entrance doors will have good heavy front door locks, no night works, with brass works, keys, and faces, with two keys each. Rear exit doors will have good heavy outside door locks, with brass works, keys, etc. All basement doors will have good locks, with brass works and faces. All locks will be mortise-locks.

Plans and Specifications.

All outside doors on main floor will have real bronze knobs and trimmings on both sides. All other doors throughout will have tucker bronze knobs and trimmings. All sash will be locked with Morris's tucker bronze sash locks, tucker bronze lifts and sockets.

All inside blinds will be hung with four pairs, 2 by 2-inch plain cast butts to each window, and the shutters secured together with $1\frac{1}{4}$ by $1\frac{1}{2}$ -inch wrought flaps, four pairs to each window, with one tucker bronze shutter bar upon the lower, and one upon the upper half of each blind, and four tucker bronze knobs upon the blinds of each window.

All sash of first and second-story windows will be hung with best fine strand sash cord, and cast-iron weights of the proper heft. All basement window sash shall be hung at top with 3 by 3-inch wrought butts, and fastened with tucker bronze cupboard catches.

All wardrobes will be provided with two rows of heavy black japanned school-house wardrobe hooks. They will not be placed further apart in each row than 16 inches, and secured to place with strong screws. They must extend on all sides of each wardrobe.

Teachers' clothes-presses will have six good clothes-hooks in each one, and a shelf on one side. There must be hooks provided to fasten open all outside doors, and the double doors between the stair hall and the cross-corridor on each floor.

There must also be provided and laid in the brick-work, as the same is being built, large eyes of wrought iron, placed at the proper points to secure outside storm houses over the rear entrance steps; these eyes should be of sufficient length to extend into the studding 3 to 4 inches, and should be of $\frac{3}{8}$ -inch iron, with the full eye projecting beyond the brick-work. There should be about six hooks to each flight of steps.

Furnish and fix to place all other hardware trimmings that may be required in or about the entire building, and suitable for the place where used.

Plans and Specifications.

Registers, Smoke-pipe, Etc.

The contractors for the carpenter, joiner, and other work, will do all of the mason and carpenter work connected with the setting of the furnaces, heating and ventilating apparatus. He will also furnish and set to place the smoke-pipe in the ventilating stack, with 13-inch collars to receive smoke-pipe from furnaces. He will furnish and set in the warm-air flues on first floor three 20 by 26-inch diamond face frames and valves, also three-valve regulators; in top of the warm-air flues in second story, three 20 by 26-inch heavy faces and frames; and one 20 by 26-inch heavy register face and frame, in the corridor on first floor. He will also furnish and set to place sixty-four sections of 10-inch molded perforated cast-iron base, said base to be placed under the various windows as directed.

The smoke-pipe in stack will be 24 inches in diameter, of No. 16 common iron, thoroughly riveted together. This pipe can be put in position in the stack in sections as the stack is being built, and must be substantially and firmly held to place by strong wrought iron supports, built in the walls as they are being carried up. These supports will be made with two arms, a loop and a tightening screw, and must be made $\frac{1}{2}$ by 2 inches and placed not farther apart than 10 feet, and must extend at least 6 inches into the brick-work. The smoke-pipe in the stack will have a cap on the lower end for cleaning out the soot. This pipe must extend the required distance below ceiling of basement, and upward to about the second story ceiling.

Wire Grating.

This must fill each of the window-openings between the frames that let the air into the ducts for supplying the furnaces with fresh air. The grating to be $\frac{3}{4}$ -inch mesh and of $\frac{1}{2}$ -inch wire, with iron frame, all properly secured to place. Hang the sashes at the top on the inside, and arrange them so that they can be opened from the basement, and regulate the air to furnaces by raising or lowering them.

Plans and Specifications.

Painting and Glazing.

All the materials employed in this branch of work to be the very best kind, and all works executed in the best and most thorough manner. Paint all the exterior wood and metal work with three good heavy coats of paint, of the best lead and oil. All metal work will have, for the first coat, a heavy one of best mineral paint. All cornices, window-frames, towers, steps, and hoods will be finished in stone-color; also all finials. All cresting will be finished dark bronze green. All window sash will be finished dark olive green. The shingles of the two tower roofs will be finished light green and dark purple to imitate slate.

All the hard wood stair treads will have three good heavy coats of raw linseed-oil; all rails and newels will have three good coats of hard oil finish and thoroughly rubbed to a finish. All inside blinds will have one coat of raw linseed-oil and one good heavy coat of shellac.

Grain all other inside wood-work on first and second stories in imitation of medium dark oak, on two good heavy coats of paint; neatly shade and varnish with two good coats of house varnish. Sand-paper well all wood-work on the priming, and putty all defects. All must be done in the most thorough manner. Give all wood-work in the basement, attic, and tower one good heavy coat of paint. Grain, shade, and varnish in a neat manner, and in imitation of dark oak, all of the outside doors upon three good coats of paint.

All window and transom sash throughout shall be glazed with the best quality of double thick American glass; all to be well bedded in putty, sprigged, puttied, and back-puttied. The doors between the stair halls and cross-corridors will have their upper panels glazed with $\frac{1}{4}$ -inch hammered glass. All glass to be whole and sound on the completion of the entire building and before its acceptance.

Plans and Specifications.

6. *Seven room School house.* The design for this building was first prepared by G. P. Randall, architect, of Chicago, for the village of Dodgeville, in this State, where it has been erected this year on a most delightful site, and at the cost of fully \$20,000. The outside walls of the basement are stone, and those of the two

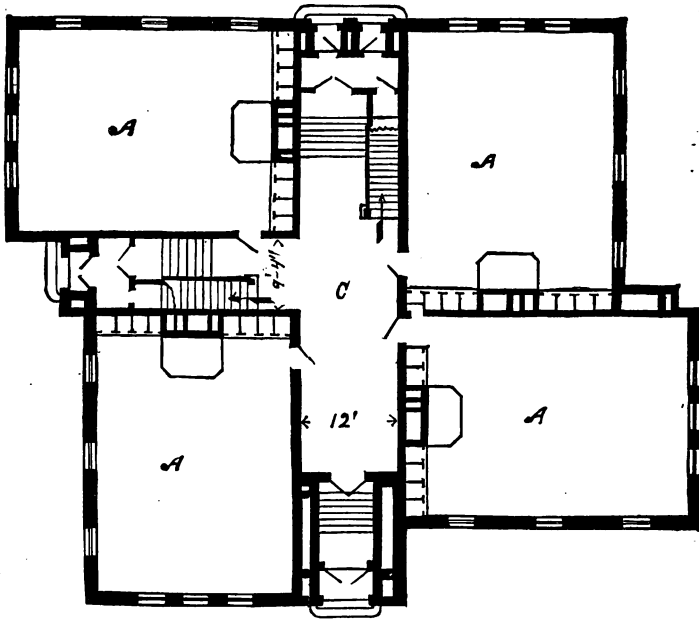


DESIGN 14 — PERSPECTIVE VIEW.

Plans and Specifications.

principal stories, including the partitions, are brick. The school-rooms furnish accommodations for 550 pupils.

There are several very desirable features in this house. It has a solid and impressive appearance as seen in the place, and from a distance. The steps for entrance in front and side and for

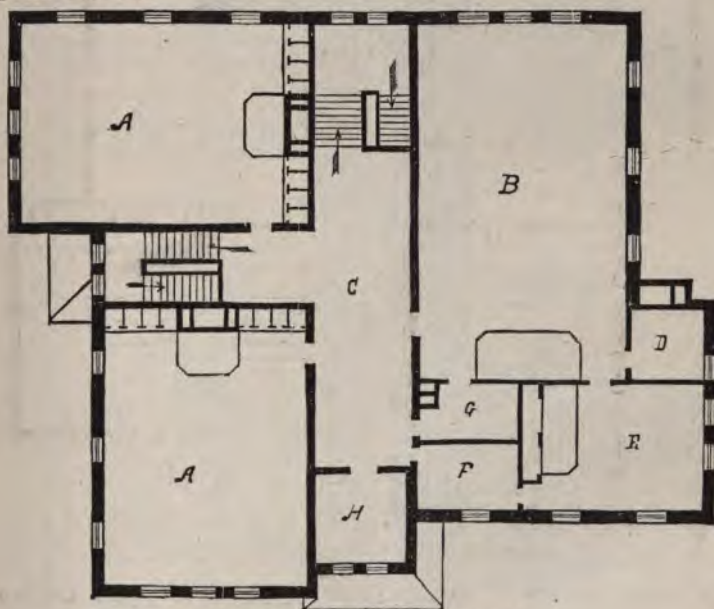


DESIGN 14 — FIRST FLOOR PLAN.

exit in the rear, are situated very largely under cover in the lower corridors. The second floor is reached by two stairways, one for each sex, who can also leave the building by a separate outside door. To economize space, no wardrobes are constructed, but small clothes-cupboards are placed in the school rooms against the walls back of the teachers' platforms. An exception is made for the largest room in the upper story, where the most advanced or high school pupils study. Doubtless, the regular wardrobes are preferred to these cupboards, as providing on the whole better conveniences. The teachers have ready access to the halls from

Plans and Specifications.

their rooms. Their desks are in front of the pupils, who are seated in rows running the longer axis of the rooms. The supply and direction of light admitted to each school room are excellent. The building as erected faces the east, and the direct rays of the sun can enter each room some portions of the day. A sufficient amount of warm air is sent into all the apartments from furnaces in the basement, and admirable arrangements exist for withdrawing the foul air.



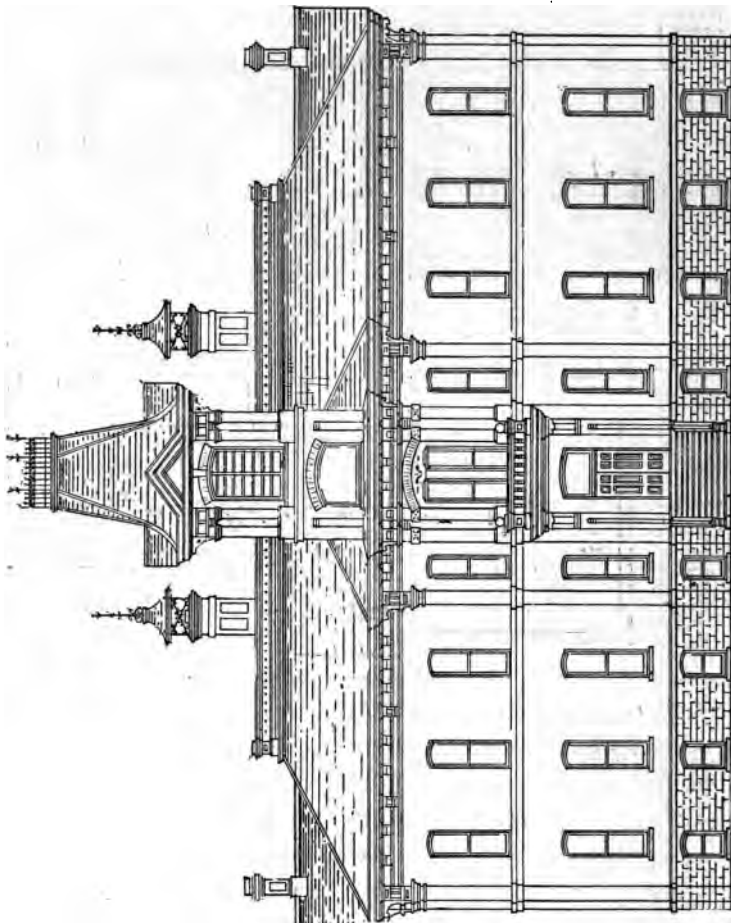
DESIGN 14—SECOND FLOOR PLAN.

7. *Eight-room School-house.* The fifteenth design, which is for a building with the number of rooms mentioned, was furnished by D. R. Jones, architect, of Madison. Below are presented the elevations, the section, and the three plans for the basement and the principal floors. Accompanying these are complete specifications to be used in the construction of the house, which are omitted for the want of sufficient space in this circular. The cost of the building is about \$20,000. The style of the exterior portions

Plans and Specifications.

is plain and substantial. In a village or city where the surrounding structures are situated quite close together, the height of this school-house will seem too low for its length and width. The upper story could be made somewhat higher without impairing the attractiveness of the outside, and at the same time really improving its symmetry.

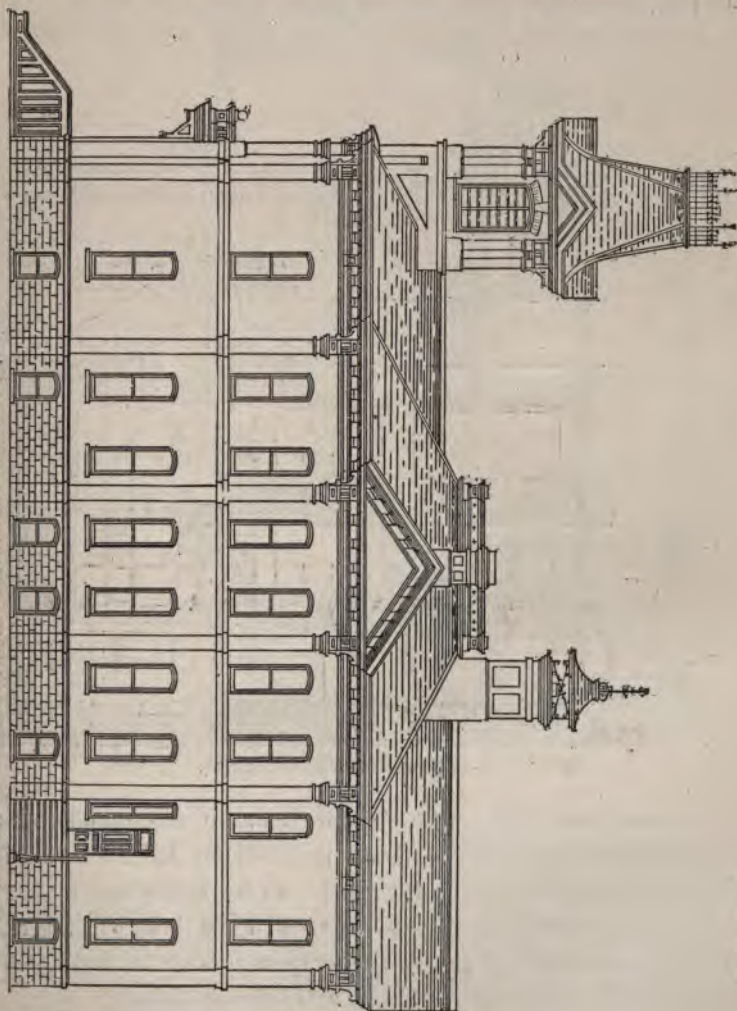
The building including the projections is $103\frac{1}{2}$ feet long and



Plans and Specifications.

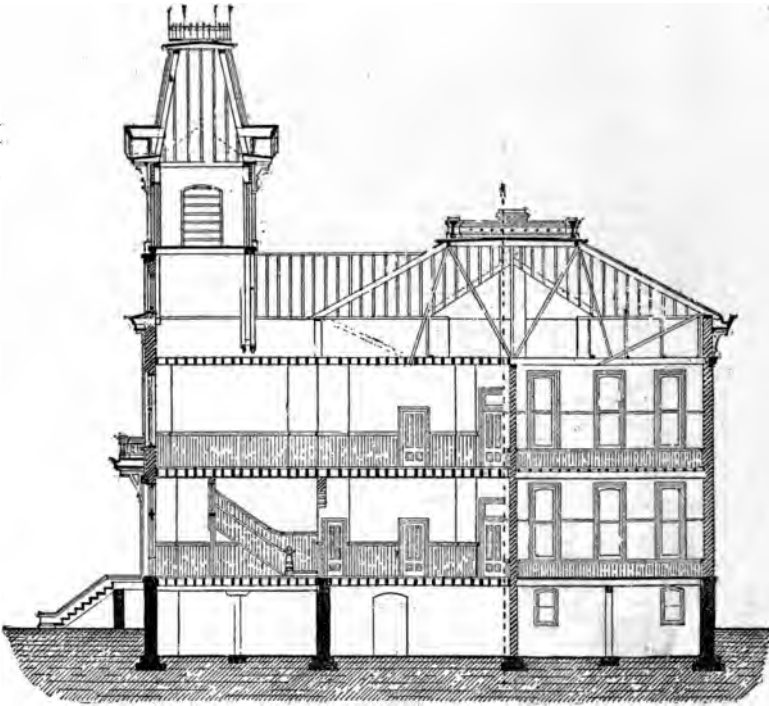
106 feet wide. The height of the basement to the ceiling is 10 feet, of the first story 14 feet 2 inches, and of the second 14 feet 6 inches. The top of the tower is 90 feet above the bottom of the basement. The surface of the windows is equal to about one-fifth of the floor area in both stories, and furnishes, therefore, a suffi-

DESIGN 15.—RIGHT SIDE ELEVATION.



Plans and Specifications.

cient amount of light for the corridors and the study and recitation rooms. The stools of the windows could be raised a foot higher above the floor, and their tops, consequently, brought nearer the ceiling throughout the building. Each school room can seat 42 pupils at single desks, and 56 pupils at double desks. In all



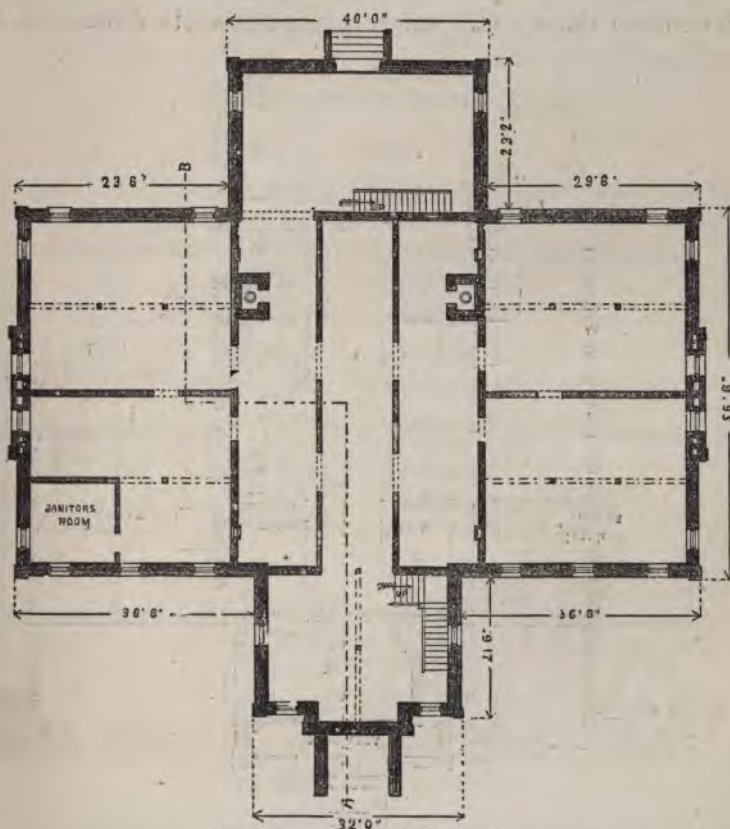
DESIGN 15 — LONGITUDINAL SECTION.

the rooms from 336 to 448 children can be accommodated, and 19.2 to 14.3 square feet of floor space be provided for each child. In each room for study blackboards can be made upon the two sides which are opposite to windows, and the light will fall at the proper angles upon them for the crayon marks to be distinctly seen by the pupils at their desks and recitation seats.

The external basement walls are built of stone, and those above

Plans and Specifications.

of brick. The heavier partition walls in all stories are made of the latter material; and the lighter ones, of studding, lathed and plastered. Under both are placed strong foundations of brick. In the front hall near the entrance doors are two stairways for

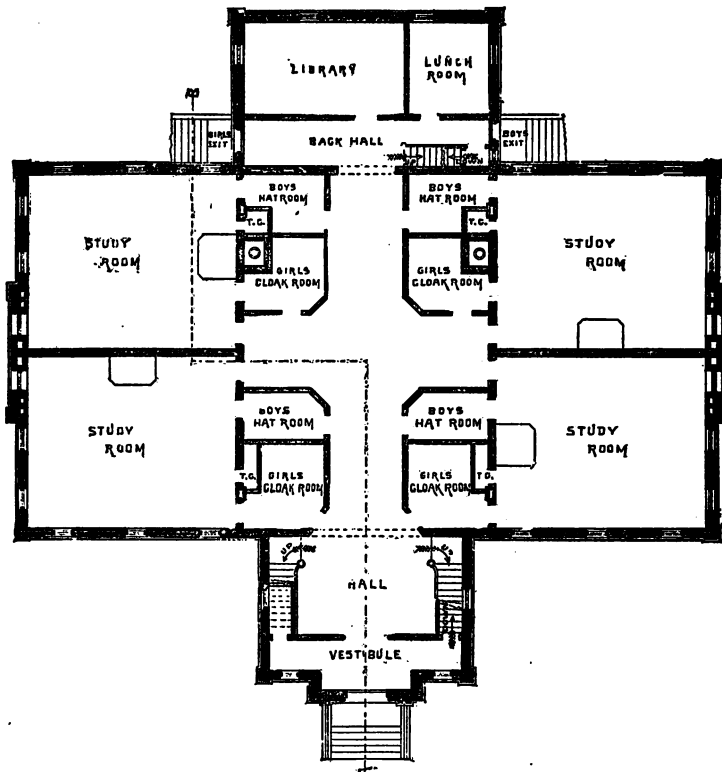


DESIGN 15 — BASEMENT PLAN.

reaching the second story — one for each sex. These are of the requisite width. In the back portion of the building are other but narrow stairways leading from the upper floor to the lower and then to the basement, and outside ones connected with the first floor, and providing exit to the outhouses in the rear end of

Plans and Specifications.

the lot. The teachers' clothes-presses and the wardrobes for the children are ample and conveniently located. The library and recitation rooms provide needed accommodations for a large public school. One of the latter rooms could advantageously be used for storing the apparatus and the small cabinets of botanical and geological specimens.

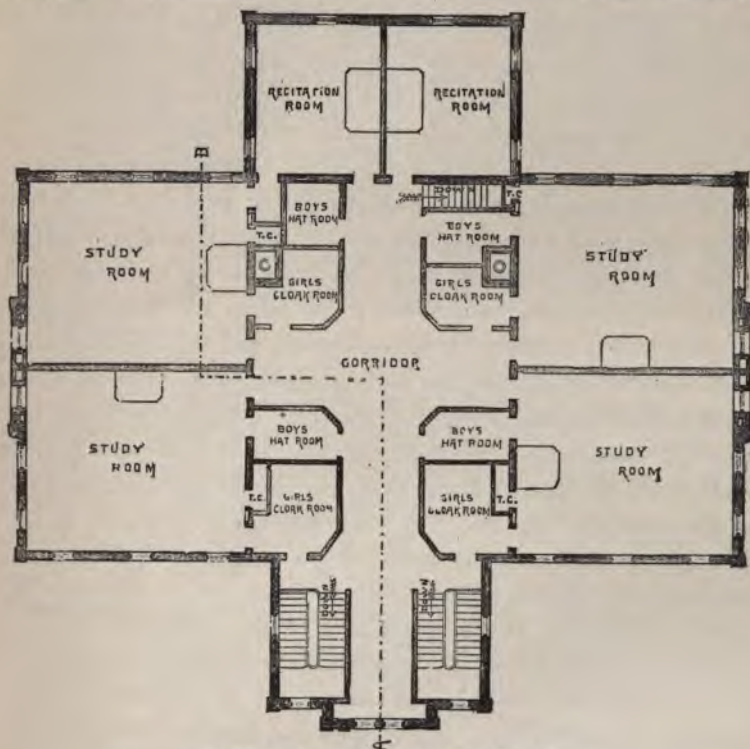


DESIGN 15 — FIRST FLOOR PLAN.

By means of the two large-sized stacks, which are properly located in connection with the partition walls, a superior system of ventilation could be introduced. The heating engineer should be allowed to place his furnaces in the required positions in the basement, and to conduct the warm air into the several rooms by

Form of Contract.

flues, which he sets in the inside walls. The foul air should be withdrawn from these rooms under their floors, and conveyed to the stacks, which are heated by the vertical smoke-pipes in the centers. The corridor on the first floor should be furnished with



DESIGN 15 — SECOND FLOOR PLAN.

a large register, through which the air from the furnace is plentifully supplied to warm the stairways, the corridors and wardrobes in both principal stories.

XVII — FORM OF CONTRACT.

This contract made and entered into this _____ day of _____, A. D. 188____, between _____, party of the first part and _____, party of the second part, witnesseth as follows: The

Form of Contract.

said party of the second part, for himself, his heirs, executors, administrators, and assigns, hereby covenants and agrees to and with the said party of the first part, its successors and legal representatives, for the consideration hereinafter mentioned, to make, erect, build, and finish a school-house for the said party of the first part (here fix location of the building), including all the carpenter and mason work, excavation and grading, painting and glazing, heating engineer's work, but exclusive of furniture, and to furnish all the materials of every kind, labor, scaffolding, and cartage for the full completion of the said building, exclusive of its furniture, such work and materials to be in strict accordance with the plans and specifications made by ———, architect, which said plans and specifications are to be taken and deemed as part of this contract, and are hereto attached, and including all things which, in the opinion of the said architect, may fairly be inferred from such plans and specifications to be intended without being actually specified, all the materials to be in sufficient quantity, and, where the quality is not described in the specifications, to be of the best quality, and the workmanship throughout to be of the best quality, and the whole to be executed in a good, substantial, and workman-like manner, subject to the directions from time to time and to the satisfaction of the architect or superintendent, and the whole to be completely finished and delivered on or before the ——— day of ———, A. D. 188 ———.

And it is hereby further agreed, by and between the said parties hereto, that the plans and specifications are intended to co-operate so that any works shown on the plans and not mentioned in the specifications or vice versa, are to be executed by the party of the second part the same as if they were mentioned in the specifications and shown on the plans, without extra charge.

The said party of the first part or the said architect or superintendent, with the consent of the said party of the first part, shall be at liberty to order any variations from the plans or specifications, either by adding thereto or taking therefrom; and such

Form of Contract.

variations shall not vitiate this contract, but the difference shall be added to or deducted from the amount of the contract, as the case may be, by a fair and reasonable valuation, and the architect or superintendent shall have power to extend the time of completion on account of alterations or additions so ordered, such extension to be certified by him to the party of the first part at the time when such order for alterations or additions is given. Orders for changes which do not affect the cost of the work may be given by word of mouth, but no order which increases or diminishes the cost of the work or affects the time of completion shall be valid unless given in writing.

Neither the whole nor any part of this contract shall be sublet by the party of the second part, without the written consent of the party of the first part.

If the said party of the second part shall fail to complete the said works, including all variations, should such be made, at or before the time agreed upon, with such extension, if any, in the case of extra work as may have been made and certified by the architect or superintendent, then and in that case the said party of the second part shall forfeit and pay to the said party of the first part the sum of —— dollars for each and every day that the said works shall remain unfinished after that time, unless in the opinion of the architect or superintendent such delay shall have been due to causes which could not have been reasonably foreseen by the party of the second part or with reasonable care and diligence avoided, the same to be retained as liquidated damages, out of any sums that may then be due or may thereafter become due to the said party of the second part on account of his work and materials under this contract.

All materials shall become the property of the party of the first part as soon as they are delivered on the ground.

If the said party of the second part shall become bankrupt or insolvent, or assign his property for the benefit of creditors, or become otherwise unable himself to carry on the work, or shall,

Form of Contract.

at any time for six days, neglect to do so in the manner required by the architect or superintendent, or refuse to follow his directions as to the mode of doing the work, or shall neglect or refuse to comply with any of the articles of this agreement, then the said party of the first part or his agent shall have the right and is hereby empowered to enter upon and take possession of the premises after giving two days' notice in writing, and thereupon all claim of the said party of the second part, his executors, administrators, and assigns, shall cease, and the said party of the first part or his agent may, after using such other materials already on the ground as may be suitable, provide other materials and workmen sufficient to finish the said building, and the cost of such work and materials shall be deducted from the amount to be paid under this contract.

The party of the second part shall be solely responsible for all loss or damage to the said works or any part of them until the whole is delivered and accepted, loss by fire alone excepted; and shall give all necessary assistance to the other workmen employed in the building, and shall be solely responsible for all damage or delay caused to their work or materials or to neighboring property or to the persons or property of the public by his workmen or through his operations.

And the said party of the first part hereby promises and agrees, in consideration of the foregoing covenants being strictly kept and performed by the said party of the second part, to pay to the said party of the second part the sum of ——— dollars, as follows: (Here specify the amounts to be paid, and the dates and conditions of payment) provided that no payment shall be made except on the certificate of the architect or superintendent or some other person thereto authorized by the said party of the first part that the work for which such payment is to be made is properly done, and that the payment is due; said certificate, however, not exempting the party of the second part from liability to make good any work so certified, if it be afterwards dis-

Form of Contract.

covered to have been improperly done or not according to the plans or specifications either in workmanship or materials; and provided, further, that prior to each payment by the party of the first part, a satisfactory certificate shall have been obtained to the effect that the said building is, at the time when the payment is due, free from all mechanics' liens and other claims chargeable to the party of the second part.

And for the faithful performance of each and every the articles and agreements hereinbefore containing, the said parties hereto do hereby bind themselves, their heirs, executors, successors, administrators, and assigns, each to the other in the penal sum of _____ dollars (about one-third of the contract price), firmly by these presents.

In witness whereof the said parties hereto have hereunto set their hands and seals the day and year first above written.

By ———, [SEAL]
Chairman of the School Board.

In presence of:

———,

———,

———, [SEAL]
Contractor.

WILLIAM C. WHITFORD,
State Superintendent.

Reports of County Superintendents — Chippewa.

EXTRACTS

FROM

REPORTS OF COUNTY SUPERINTENDENTS.

CHIPPEWA COUNTY.

C. D. TILLINGHAST, SUPERINTENDENT.

During the year four new school-districts have been formed in the county, and three districts have been attached to others. The schools of Chippewa Falls have suspended two departments. Two or three graded schools will be formed during the coming year.

There are in the county 5,026 children between the ages of 4 and 20 years,—an increase of only 39 since last year. Of these, 3,747 have attended school during that time.

The number of applicants for certificates was 216; and of these, 184 received certificates or licenses. Of these, 12 were second grade, 48 full third grade, 110 limited third grade, and 26 licenses. The difficulty of procuring teachers for the schools rendered it necessary to grant licenses to those who seemed best qualified to teach, but whose standing did not entitle them to regular certificates. There has been quite a number of requests for certificates without examination. The frequency and persistency of such requests, often on the part of members of school boards, suggest the necessity of instruction in their duties.

In several instances I have been requested to indorse certificates issued by other superintendents. I have been unable to

Reports of County Superintendents — Columbia.

find any authority for it, and I believe such certificates void and no protection to the teachers using them. I have been unable to make the standard of qualifications what in my judgment it should be, owing to the difficulty of obtaining teachers for the schools.

I have made special effort during the past year to secure uniformity of text-books, blackboards, better seating, warming, and ventilating of school rooms; and I find it a work of no small magnitude. I have been met with objections and lack of interest on the part of some, but in quite a large number of instances the object sought has been accomplished. The fall institute, while not largely attended, was one of unusual interest and profit to those who were present.

I have endeavored to prepare the way for the adoption of the course of study for the ungraded schools. Quite a number of teachers are using it with more or less success. District boards show little interest in the matter, and yet progress is being made.

The frequent changes of teachers, lack of uniformity of text-books, irregularity of attendance, lack of interest on the part of the school officers and patrons are difficulties that can only be gradually overcome.

COLUMBIA COUNTY.

HENRY NEILL, SUPERINTENDENT.

The decrease of 346 children in the total enrollment of the county from last year's census, is due more, I think, to inaccurate returns than to actual count. This inference would seem quite credible to any one seeing some of the clerks' reports. But while there is an apparent decrease in number, the percentage of that number in attendance upon the schools has been precisely the same as last year. And this, too, in spite of the fact that seldom, if ever, were the schools of our county so frequently visited by recurring contagious diseases, such as measles, diphtheria, whoop-

Reports of County Superintendents—Columbia.

ing-cough and scarlet fever. Especially so was this the case in the eastern part of the county.

There is great demand for good teachers, especially males. Two things, however, incompatible in themselves, are inseparably connected in the minds of most district officers when wanting a teacher, viz.: a good teacher who is cheap. The result too frequently is a poor teacher who is dear. As an evidence of the improvement of teachers and schools, I am pleased to note the slight advance in wages. Male teachers of all grades receive an average pay of \$39.46, an advance on the previous year of \$3.42 per month. Female teachers receive an average of \$20.90, an increase of 43 cents per month. If we include country districts only, the increase in the wages of male teachers is nearly \$4 per month. This is gratifying, since it betokens a healthier condition of our educational work, and it is a logical conclusion that higher wages usually secures superior talent in the teacher. The good effect will be felt still more the coming year.

During the year I have made 270 visits to the 146 schools in the county; counting as one visit each school of two to six departments. About a dozen of our districts maintain no summer schools. In these visits I took occasion to note the condition of the buildings, the attendance of scholars, and the character of the work done. Besides private suggestions to the teacher, I made public through the local press my observations and criticism thereon, by a series of "School Notes." It was a sure and effective way of pointing out defects in either buildings, apparatus, or methods of teaching. As a result, school-houses have been repaired or built anew, and there are greater uniformity and thoroughness in our school work. Among the sadly neglected studies of the common school curriculum, I have laid special stress upon writing and language lessons. The former is now almost universal in our schools; while the latter is receiving much closer attention.

Among other things that I have urged during my visits is the

Reports of County Superintendents — Columbia.

necessity of classifying and grading; and I am happy to state that nearly all of our teachers are giving it more or less attention. All now seem to realize the need of grading, but find many difficulties in carrying out the scheme. Some are quite successful and find it a good thing when once fairly started. To aid it, I have furnished a synopsis of the scheme, printed on placard, to every school, and required it to be tacked up in a conspicuous place of the school room, asking the teacher to follow it as nearly as possible and to familiarize the pupils with it. I furnished the teachers with a blank record also, very much like the plan of Lunn's Register, to be filled at the end of the term. Where this has properly been kept, I have heard the succeeding teacher speak very highly of its aid in opening a new school. As Lunn's Registers are becoming quite common, there is little further need of the blank. The grading system deserves the special attention of teachers and superintendents, since through them alone can it be introduced into our schools.

Three institutes of one week each have been held at Portage, Cambria, and Lodi. The first was held in the spring; the two latter in the fall. The work in all was conducted by Prof. Salisbury, and was of a very thorough and satisfactory character. In these institutes, 189 teachers were enrolled, over three-fourths of whom were experienced. Never before have the teachings of the institute been so apparent in the work of the school room as during the past year. Our teachers at beginning know less about primary teaching than any other part of school work. During the winter season five local associations were enthusiastically maintained in the county, each association meeting once in five weeks. I made it a point to attend nearly every meeting. Subjects pertaining to every-day school work were discussed by the teachers.

Five new school-houses have been built during the year; two in Lewiston, one in Courland, one in Ft. Winnebago, and one in West Point. All are substantial frame buildings except one, which is of brick. Five other districts have voted to build anew

Reports of County Superintendents — Dodge.

next spring or summer; while many have so thoroughly repaired their old buildings as to make them look almost new. Some improvement has also been done in the way of reseating with patent seats, procuring maps, better blackboards, etc. Twenty Webster's Unabridged Dictionaries have been brought into the county since the State department furnished the new supply.

In conclusion, I have only to say that my two years' experience in the superintendency of schools of Columbia county has been exciting and in a great measure pleasant, though burdened with labor and disagreeable work. The latter was necessary to get things into proper shape; and if I have paid the political forfeit of a too severe administration, I do not regret that I have been impartial and thorough. What errors I have made, have been made through zeal for the welfare of the schools and the ever present desire to do what was right; and a greater reward to me than continuance in office would be to hear it said in after time that "he did his duty."

DODGE COUNTY.

J. T. FLAVIN, SUPERINTENDENT.

The inclement weather of the past winter, the impassable condition of the roads for long periods of time, in connection with the prevalence of contagious diseases among children, interfered materially with the regularity of attendance at our schools, thereby preventing the realization of the best results, which is always impossible where but fragmentary instruction is received, and the continuity in the chain of school work is broken. No very rapid strides in the direction of great permanent efficiency in the work of the average school in the rural district, is likely, yet there is unmistakable evidence of steady, wholesome improvement in that class of schools in this county.

At educational gatherings in this county scores of teachers have been led to a clearer conception of the imperative need of

Reports of County Superintendents — Dodge.

thorough and careful preparation for their work, and the resolute purpose there formed has subsequently found expression in faithful private application to study, or in a temporary abandonment of teaching, and the entering of some good school, usually normal, where the needed training and culture for the intelligent discharge of their duties could be obtained. Some of my very best teachers resigned lucrative positions during the year, and are now in attendance at school for the purpose of better equipping themselves for the discharge of their duties as practical instructors.

Our teachers' institute was held at Horicon, during the week beginning August 22, and an enrollment of one hundred actual working members was reached, nearly all of whom were in attendance throughout the session. They were more mature and advanced than is usual on such occasions, and well deserved the many compliments their conduct elicited. Prof. Emery, of Fort Atkinson, and Prof. Clarke, of Horicon, had immediate charge of the exercises of the institute; but they were ably seconded by Mrs. L. H. Clarke, and Prof. Turner, of Mayville. This is the second time Prof. Emery has been with us as institute conductor, and he fills, in full and rounded measure, every requirement of a person in that capacity. It was the first regular institute work in which Prof. Clarke engaged, yet he acquitted himself most creditably, and will surely take high rank in that line of work at an early day.

During the institute a teachers' association was organized, since which time three interesting meetings have been held.

A regular scheme of work has been prepared, and will be systematically followed and no time frittered away in desultory and unprofitable efforts.

While we have some persons engaged in teaching, who display little fitness for the work, we have many very superior teachers, and about all are progressive and cheerfully avail themselves of every opportunity offered for bettering their qualifications.

Reports of County Superintendents — Douglas.

There has been, from year to year, a steady and noticeable advancement in our high and graded schools, which is chiefly attributable to the care and good judgment exercised in the selection of teachers. One of the most valuable acquisitions to the teaching force of the county this year, is that of Prof. J. M. Turner, a graduate of the State University, and for four years principal of one of the union schools of the city of Watertown. He assumed charge of the high school in the village of Mayville at the beginning of the year, and he is a faithful and untiring worker.

The circulars on grading our district schools have been thoroughly distributed, and the matter has been called to the attention of teachers and fully explained, personally, and at examinations and institutes. The scheme will be well tested the coming winter, and how far it is practicable to carry it into effect, largely determined. Much preliminary work has been done, and in the hands of some teachers good progress has already been made in the direction contemplated.

Two school-houses were erected in the town of Oak Grove during the year; one at an expense of about a thousand dollars, and the other, which is at the village of Juneau, costing six thousand. The latter house is a large two-story one, with well furnished rooms, and the most approved facilities for heating and ventilating.

DOUGLAS COUNTY.

I. W. GATES, SUPERINTENDENT.

Since sending my last annual report, I am pleased to be able to state that much improvement has been made in the organization of the schools in Superior; and if the present plans are adhered to, we shall soon have a working system adapted to the wants of all pupils in the town. No rigid grade has been established, but a more complete classification with a design to meet

Reports of County Superintendents — Eau Claire.

the wants and capacities of all pupils. Tardiness in many schools gives much cause for complaint.

The questions of ventilation and of moist or dry atmosphere are matters of importance. If a room or house is warmed by a ventilating stove or furnace, properly constructed so that a constant supply of fresh air is forced into the room, the impure air will be partially forced out at all cracks and crevices, or may be let out at the top or bottom of a window, as circumstances may require. About Nov. 1, 1830, a ventilating stove was set in one of our school-houses, provided with a water tank. It produced a moist atmosphere, whose effect was so relaxing that teachers and scholars were very liable to suffer from chilliness and to take cold upon leaving the school rooms. After one month the use of water was discontinued, and the dry atmosphere was found to be more agreeable and much more conducive to health.

EAU CLAIRE COUNTY.

AGNES HOSFORD, SUPERINTENDENT.

Fifty-one of the sixty-seven districts have adopted a list of text-books. Thirty-seven districts purchase the books and twenty-five of these loan them to pupils, twelve sell them. In several districts in which books have not been adopted there is really a uniformity and sufficient supply. In 1876, geography was taught in 40 schools, now in 60; history was taught in 22, now in 42; and grammar was taught in 29, now in 50. In 1876, there was scarcely a school in which there was not much loss from lack of uniformity of books and insufficient supply. The loss now is very insignificant. Books are nearly uniform throughout the county.

The course of study given in circular on Grading System for Country Schools, is practically in operation throughout the county, although few official adoptions of it have been reported. I have aimed to make the teachers familiar with it and friendly

Reports of County Superintendents — Eau Claire.

toward it, before urging its adoption by school boards. The summer schools were very generally organized in accordance with it, and the teachers of the winter schools thus far (December, 1881) have almost without exception reported their schools as thus graded. I am not able to say that this work is always well done, but the teachers are aiming toward the systematic classification and instruction to which they are directed by the circular. They appreciate the advantages of such a system, and I trust it will soon have passed beyond the stage of experiment. Believing the teachers were sufficiently interested to make an adoption of the course of study by school boards something more than a mere form or an unnoticed and soon forgotten regulation, I have presented the matter to school officers this fall by means of a circular sent to each one, asking for it their official adoption and support. I think that is necessary to give it permanence.

During the winter the severe cold and snow-blocked roads hindered traveling to some extent, so that some schools were closed before I could reach them. All but seven were visited. In the summer I failed to reach four. All but two were visited at least once during the year. Those two had only a winter term. During the visits the course of study was explained, methods of keeping records shown, errors in teaching and school management pointed out, and good work or faithful effort commended.

Sixty-six of the seventy-three school-houses are reported in good condition. They are so considered simply as buildings; but for adaptation to school purposes and the comfort and convenience of children, many of them might be improved. Not one country school-house has any means of ventilation excepting by opening doors or windows. Sixty per cent. are furnished with patent seats; the others are furnished with the combined seat and desk of home manufacture. Some of these are nearly as comfortable as the patent seats; and some are places of torture, owing to disproportionate height or width of seat, or inclination of back, or height of desk and distance from seat. There is no

Reports of County Superintendents—Eau Claire.

school room in the county without a blackboard, but in some it is very small and in others very poor. All but four are supplied with Webster's Unabridged Dictionary. About one-half the schools are supplied with a globe, map of the United States, and map of Wisconsin. Nearly all that have so much as that have complete sets of maps. Forty-one per cent. of the school yards are inclosed; ninety per cent. have outhouses in good condition.

The teachers' institute held at Eau Claire in the spring, was well attended. Since primary teaching has been a prominent feature of the institute work, a most gratifying improvement has been manifested in the schools. There is none in the county, in which the work designated in numbers, reading, and writing for pupils in the Primary Forms, has not been attempted. The lessons in geography are not so universally given, but in many schools that is also done. It is a rare thing now to find a pupil in the Second Reader, who cannot copy his lesson in legible writing on his slate and perform simple operations in numbers.

The teachers' library, consisting of one hundred sixty volumes, has furnished to teachers acquaintance with some of the best works on education. A fair proportion of teachers have availed themselves of this means of improvement. Although the books are free to every teacher, some have never read one.

The course of reading for Wisconsin teachers, approved by the State Teachers' Association, has been made known to teachers of the county through a circular, and they have been invited to pursue the course. Some have signified their intention to do so. Two copies of each book in the first year's work are in the library.

The number of persons seeking employment in the schools, was less during the past year in proportion to the number needed than at any previous time. This was due, in part, to a larger number of the young people remaining in the graded schools, or returning to them to complete the course of study; and in part to a revival of business, which furnished more lucrative employment to some who had been teachers. One hundred three

Reports of County Superintendents—Fond du Lac.

teachers are needed for the schools of the county. There were only one hundred twenty-five applicants for certificates during the year, one hundred ten of whom were successful. In addition to these, nine persons held State certificates, and there were forty unexpired county certificates at the opening of the school year. While school officers could not remain at home and wait for teachers to come to them, and were sometimes put to the inconvenience of writing a letter, there have been enough teachers for the schools. As engagements were reported to me very soon after being made, I had the means of directing teachers to schools, and school officers to teachers unengaged.

Almost without exception, I have found teachers and school officers willing to co-operate with me in any plan proposed for the interests of the schools.

FOND DU LAC COUNTY.

ED. McLOUGHLIN, SUPERINTENDENT.

The whole number of children reported is 11,664, or about 400 less than for 1880. Of these, 7,238 are returned as having received instruction in the public schools, and 983 in private schools. It appears from this that 8,221 children were receiving instruction, public and private, leaving 3,443 as not having attended school at any time during the year. At first thought it might seem that our schools are not supported and patronized as they so richly deserve, but closer examination dispels this doubt. The number reported between four and seven is 2,500. Of these, 1,200 did not attend school. This leaves a total over seven and under twenty not attending school as 2,243. Of this number, how many are being instructed elsewhere, I am unable to say. Of the 8,221 attending school, 6,921 were over seven and under twenty, or 84 per cent. of those that might reasonably be expected to attend school were enrolled.

Reports of County Superintendents — Fond du Lac.

School-houses have been made more comfortable ; school yards better inclosed and more attractive ; the condition of outhouses better by 50 per cent. ; school rooms, under the management of neat and interested teachers, wholesome and tastily ornamented ; and a just retention of faithful teacher from term to term. To encourage the continuance of these sanitary and needed improvements, I issued a circular to school-districts, prior to the annual meeting, and requested therein that the same be read to the meeting before proceeding with the regular business.

While yet in a few of the back-woods districts "any one will do," throughout the county generally there has been a stronger demand for better teachers. Having tasted the benefits accruing to them from the good teacher's work, districts insist on a fuller gratification of this feeling. Aside from any vanity, I hope I have been somewhat instrumental in securing these results. Having reduced the number of teachers to a minimum by lopping off the outgrown and worthless branches, and refusing to license young aspirants who had better be taught than teach, I was able to locate many of the remainder where they could do the most good. The glad day has come when district boards apply to us for teachers, thus placing it in our power further to stimulate to prepared efforts those who would be recommended. Of 337 applicants for certificates during the year, 100 were refused. Some of those who reluctantly bade teaching a long farewell, and some who were not permitted to bid it good morning are undoubtedly better employed in trimming hats and making conveniently cut garments ; but the greater number of the second class are persistently fitting themselves for teaching. They will soon be needed, and, when the time comes, will be prepared to assume understandingly the duties of teachers. During the year there has been a slight advance in teachers' wages, particularly noticeable in favor of the ladies. This is encouraging, and, from the present outlook, the advance will be strongly marked during the next year.

Reports of County Superintendents — Fond du Lac.

Last winter a successful effort was made to start a library. An association was organized, money contributed, and books purchased. The embryo collection now numbers 80 volumes, including standard works on teaching, history, biography, fiction, and poetry.

For the past two years, I have been editing an educational department in one of the leading county papers. I have tried to make it racy and instructive. It is a medium through which teachers may consult and discuss. It is not devoted to teachers alone, but to officers, patrons, and pupils. The subject-matter includes methods of teaching, academic information, queries and problems, personal mention, and the result of my own observations in the school room. I believe it well repays the labor bestowed.

The institute of last spring was a complete success. Prof. Graham, so devoted to public school interests and to the highest good of the teachers, has endeared himself to the people of this county. The teachers have no truer friend, nor the public schools a firmer advocate and guardian. Pres. Geo. S. Albee and Miss Anna W. Moody, of the Oshkosh Normal School, spent one day at the institute. The former's lectures on "Reading," and "the Recitation," afforded many valuable hints and suggestions; and the latter's talk on "History" was brim full of good things. The institute also enjoyed a pleasant visit from Supt. Whitford, whose lecture was of special interest to the teachers of ungraded schools. The lessons of the institute were carried into the summer schools with good effect and visible results. The associations have been continued with all possible interest. Some good has been done. Next year, the work of these associations will be more systematic, and therefore more effective. Last year, this county had 54 students in the Oshkosh Normal School. Nearly one-half of the number of last spring's institute had attended the same school. The work of these trained teachers tells for itself. It is not spasmodic and accidental, but steady and well directed.

Reports of County Superintendents — Green Lake.

But little has been done to introduce the course of study into our schools. We have been preparing the way by trying to understand its object and limitations, the circumstances under which it is to be tested, and its final acceptance. It will receive considerable attention the coming winter, and will be given a fair trial. If no other advantages are gained, it will positively give shape and direction to the instruction now offered in the ungraded schools.

In conclusion, permit me to state that, during the four years of my incumbency, I have labored honestly for the welfare of the schools, making such changes as I deemed advisable, and introducing such features as best conform to present thought. While the improvement of the mind is not confined to any one channel or line of thought, it is no easy matter to convince constituents of this. The modern improvements in machinery and practical arts possess substance and appeal to the lowest and least cultivated, but that there should be any improvement in methods or quality of teaching is accepted with many reservations even by people of intelligence. This reserve must be driven from its untenable covert, before the field is safely won to the advanced advocates of reason and science.

To you, Mr. Whitford, I acknowledge personal obligations for kind words, generous counsel, and active support. I thank you for many personal favors, and only ask to be continued in your confidence and friendship.

GREEN LAKE COUNTY.

A. W. MILLARD, SUPERINTENDENT.

During the earlier portion of the winter months, our schools were seriously interrupted by epidemic diseases, the principal of which was diphtheria. In the towns of Princeton and St. Marie, schools were suspended on this account for several weeks. This disease prevailed in some other localities, but did not prove so

Reports of County Superintendents — Green Lake.

fatal as in these places. So many deaths occurring naturally created a panic and retarded the school work in localities not immediately situated where this disease first broke out. Owing to the snow blockades, the schools after February 25 were poorly attended. If proper sanitary regulations had been observed, there can be no doubt but that many lives would have been saved, and that sickness, which took two hundred of our children to a premature grave, could have been prevented. Because some are careless and ignorant, many must suffer. The attendance in general in the summer schools was better than the preceding year. In the methods of instruction, teachers are gradually improving. Several of our teachers are, at present, attending the State Normal School at Oshkosh, where they intend to remain during the year. Twelve of the teachers who are intending to teach the coming winter have attended Normal School, and all but four have been members of the county institute. Our village schools are under good management, and are doing a good work in fitting teachers for their professions. In many districts, teachers are retained for a succession of terms, and in these schools the advancement is better, tardiness and non-attendance almost unknown, and deportment generally good. Sometimes a dollar or two on the wages will compel a good teacher to be superseded by a poorer one, and by the time this process is repeated a dozen terms, patrons begin to think of allowing the district to lapse, because children do not want to go to school. I am glad to report that cases of this kind are isolated. With gentlemen teachers this tendency is more common. Several of our best teachers have sought other professions, because insufficiency of pay compelled them to this course. Where public sentiment is favorable to paying a teacher living wages, the schools are prosperous and the teachers happy. While in those localities where schools are put up at auction and the lowest bidder takes the school, the people are unprogressive and the teachers sad.

Four frame school-houses have been erected during the year.

Reports of County Superintendents — Green Lake.

These take the places of old ones which were unfit for school purposes. A few more need repairing in the same way. Fifty-four buildings are reported to me as being "properly ventilated." Since the question is asked, it must be answered. In making my report to you upon this subject, it might have been better to have had it conform more to facts; but it went to you as reported to me. In many of these "properly ventilated" buildings the windows are nailed to keep the cold out in winter, and nailed down to keep the boys out in summer. This subject of ventilation has been frequently commented upon by the county papers, but only in a few places has it been considered to be of enough moment to heeded. Circulars issued by the State Board of Health have been, on two or three different occasions, distributed among the teachers for examination, with some effect for good it is hoped, but more frequently never looked at, "because it is not in the third grade studies."

The mixed condition of text-books continues about the same as in my last report. Only one-half of the districts are reported as having adopted a list of such books, and twenty-four use only those adopted.

I have seen every school in the county twice during the year; having made 156 visits, remaining usually one-half a day, in some cases longer. The time during these visits, has been occupied in hearing classes, and in making such explanations and suggestions as were deemed advisable. To instil a spirit of thought and thoroughness has been the objective point.

The annual county normal institute was held at Markesan, commencing August 20 and closing Sept. 26, with an enrollment of 73 and an average daily attendance of 65. In many branches teachers did better work than ever before in the last four years. Nearly all had attended institutes in the county or elsewhere before. Owing to the oft expressed fact to me by State conductors, "that they disliked to take charge of an institute in the middle of the term," I waived the benefits and advantages to us, and did

Reports of County Superintendents — Green Lake.

the work myself. It was impossible to call an institute in the spring on account of the lateness of the season.

We have done our best to introduce and carry out the grading system in our country schools, in accordance with the instructions from your office, contained in the Grading Circular sent out for distribution last winter; and have met with better success than was at first anticipated. We attempted to introduce this scheme into only forty-five of the schools last summer, and reported thirty-five as having done fair work, the other ten not enough to be worthy of mention this year. That so little was accomplished in these ten schools was owing to the fact that the teachers did not comprehend the plan well enough themselves to make a success of it. There are many drawbacks to the successful working of the scheme, but, perhaps, none that cannot be overcome by patience, labor, and time. With teachers who are capable of rising out of the old ruts and have the power to overcome public sentiment, which is generally opposed to any reformatory measures of this kind, and are willing to labor "in season and out of season," success is sure to follow. Of the teachers who intend to make teaching a life profession, we have the successful workers. I had not thought it advisable to try to introduce the scheme into the rest of the schools before the winter term, and perhaps not all then.

While school officers may not do much to aid teachers in this work, I have not yet found any who openly oppose it. In fact, if it proves to be a good thing (as no one can doubt but what it will), all will be willing to share the eulogium of a grateful people. In general, all or nearly all may be quite indifferent as to any change of this kind; yet this should be no discouragement to teachers or superintendents. It is mainly through these that success must be secured. The greatest hinderances, to my knowledge, are the irregular attendance of pupils, the want of uniform text-books, change of teachers in some schools, and proper books of records. It is almost impossible to classify and keep in classes,

Reports of County Superintendents — Juneau.

a school where only two-thirds are present any one time, as in the case of some schools where there is a large foreign element. I have nine applicants to examine for graduation under the "Course of Study" this fall. I have not yet had the time, but expect to hold the examination sometime during the month of November. I see no reason why the "Course of Study," with intelligent teachers, cannot be successfully worked in nearly all the schools. We shall not allow this work to fall by the wayside and die. Our thanks, as teachers and superintendent, are tendered to you for the great interest taken in the cause of education, and the untiring efforts you have made to establish a better order of things. May your lot fall in pleasant places.

JUNEAU COUNTY.

W. G. SPENCE, SUPERINTENDENT.

According to the reports furnished by the town clerks, the school census this year is 5,806. Of this number, 4,005 have attended school. This is 69 per cent. of the census. The number enrolled in the graded schools is about 1,500,—37 per cent. of the children in the county.

Of the teachers employed, 13 were prepared in normal schools, about the same number in colleges and universities, and the remainder, with few exceptions, in the high schools of the county and State. We hire 117 teachers, and hope we have succeeded in giving to the schools of the county only the fittest of the applicants.

The graded schools of the county were, during the past year, under the most efficient management, and the positions made vacant by the voluntary resignations of Profs. Foster, Wagley, Anderson, and Sabin, cannot be easily filled.

The village of Elroy organized a graded school of three departments, and before the end of the school year conformed to

Reports of County Superintendents—Juneau.

the high school law, and is now prepared to furnish the course of study required by the law in order to receive State aid. The most pressing necessity exists for more school room at Elroy. We noticed the same demand in the lower departments in Wonewoc and in each and all departments in Mauston. All these three districts have been talking of getting more room; and after the usual preliminary jangle, will doubtless do so. In the meantime, teachers and pupils pay the bills.

Necedah this year added a fine commodious new room for primary work, and now has the largest number of well-arranged rooms in the county.

Some of the mixed schools have been supplied with teachers who may, in future years, be heard from among the higher institutions of learning. We had about 125 legally qualified teachers at the opening of the winter schools. About 25 per cent. of these were not licensed until it was known that their services were needed. It was a choice between a poor teacher and no teacher at all. We have instituted a thorough exacting system of examinations, each a little more difficult than its predecessor, and have found it an important factor in the progress of our common schools.

We started early last autumn and visited all of the graded schools before the mixed schools opened, then in the three months following we spent the entire time among the country schools. Suggestions and directions regarding the organization, classification, and gradation were freely given, especially to young teachers; criticisms of class drill and school management being transmitted to the teacher in writing.

The course of study for country schools has been put into the hands of all teachers of such schools, and many have been able gradually to bring their schools and the course together. If this work is kept constantly before the teachers, it will not be many years before the habit of taking pupils over the same ground winter after winter will be abandoned, and our country schools will send their graduates directly to the high schools.

Reports of County Superintendents—Marathon.

Our annual institute was held at New Lisbon during the latter half of August. Seventy-eight teachers were enrolled, and the work was creditably performed by conductors and teachers. Prof. S. S. Rockwood and Rev. A. O. Wright favored the teachers with instructive lectures.

The Juneau County Teachers' Association was organized in four divisions, each of which held monthly meetings during the winter season. The large amount of snow during the months of February and March interfered somewhat with the attendance upon these meetings, yet this, the teachers' school, did much good work and promises well for the future.

MARATHON COUNTY.

THOS. GREENE, SUPERINTENDENT.

In the beginning of October, 1880, I began the visitation of the country schools, and instituted the grading system in nearly all of them. There was very little difficulty in the work. Three teachers only declined to use the programme in your circular, but finally they concluded that it was best to obey rather than lose their certificates.

Our teachers' institute for the year was held in the city of Wausau, in September. It was conducted by Prof. Robt. Graham. Forty-seven teachers were present, and were much pleased with the instruction given.

The examinations of teachers have been conducted as heretofore, and the average attainments of the candidates were far in advance of last year.

There are 19 towns in the county, and 91 regular districts, and 7 joint districts, making 98 districts in all. Four schools have each two departments,—one in Colby, one in Mosinee, one in Spencer, and one in Unity. I have made 97 visits to the schools during the year.

Reports of County Superintendents — Ozaukee.

OZAUKEE COUNTY.

WM. F. SCOTT, SUPERINTENDENT.

In comparing the statistics of 1881 with those of 1880, I find that in most cases they are substantially the same, the only difference worthy of mention being an increase of 244 in the number of children who attended the public schools, while the increase in the number of children of school age is but 59, making an absolute gain of 185 in the number of children attending the schools. This increase I attribute to the State Superintendent's circular on the compulsory school law, and the efforts of the school officers to enforce its provisions. During the whole of the school year which has now closed, I hoped that I would find, and have the pleasure of stating in this report, that there was a considerable increase in the number of children who attended the schools; but it seems this hope has not been fully realized, nor altogether disappointed. Though a gain of 185 is small, compared with what it seems that it ought to have been, it is nevertheless encouraging, for it shows that the tendency of public sentiment regarding the compulsory school law is in the right direction. The general import of that law is good, and it seems to me that it is to be regretted that it is not less flexible in its provisions. School officers inform delinquent parents of the existence of the law, and urge them to comply with its requirements; but when the parents fail to do so, the officers seem unwilling to prosecute under the law. And this unwillingness, I apprehend, arises in the fear that they cannot obtain a conviction under that law, as it furnishes the parents so many pleas for retaining the children at home.

In the last school year, I examined 88 applicants for certificates, and granted 4 certificates of the first grade, 6 of the second grade, 54 of the unlimited third grade, and 10 of the limited third grade. I would have issued no limited certificates, if the number of teachers who received unlimited certificates had been sufficient

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Reports of County Superintendents — Richland.

to supply the schools. The number of limited certificates issued last year was 18, and the number issued this year is only 10. I confidently believe that the day is near at hand when it will be unnecessary for the superintendent of this county to issue limited certificates. The holder of such a certificate now finds it difficult to obtain a situation in the schools. His qualifications are viewed with distrust by the school officers, who are cautious about employing him. The officers of several districts in which holders of limited certificates were employed last year, were instructed this year, at the annual meeting, to employ no person for a teacher, whose certificate was below a full third grade.

Two districts in the town of Mequon are reported as adopting the past year the grading system for the country schools. To my own knowledge, there are other districts in which the schools were organized under the grading system at the beginning of the present term by the teachers, without the assent or dissent of the school officers. This is the beginning of the work of grading the schools of Ozaukee county, the beginning of a work that will, I hope and believe, be continued until it is acknowledged a complete and permanent success. When I begin the work of school visitation, I shall in person urge the matter upon the attention of the school officers. This is a work in which time, patience, and perseverance will be required to insure success.

RICHLAND COUNTY.

D. D. PARSONS, SUPERINTENDENT.

During the last six years, I have made some improvements, and of course there have been some disappointments; but, on the whole, the work has been pleasant. The most noted progress is in the teachers themselves, and in the kind of work they do in the school room. Much of the dry routine of this work has disappeared, and in its place we have better methods and necessarily

Reports of County Superintendents — Rock.

a much better interest manifested by both teachers and pupils, and I may also include the parents, as they are also awakening to the importance of the work. Among other noted improvements of my administration, I cannot forbear to mention our library, which has had an excellent influence on the reading habits of the teachers. Our association work has also taken permanent foothold in this county, and the meetings have done a great amount of good, especially in awakening the teachers and county superintendent to the importance of the work.

We are laboring now quite thoroughly under the grading system, and it is giving good satisfaction. We also have our school year divided much more intelligently into fall, winter, and spring terms, and no school during the months of July and August.

A large number of the teachers are now employed by the year, and I think nearly all would be if we had enough good teachers.

Among the discouragements we cannot help mentioning the great diversity of books. But few schools have a uniformity and a large number have a great diversity of them.

New substantial school-houses are taking the places of our old ones, and nearly all of them are furnished with good seats and other good accommodations.

I would recommend that our State Legislature change the time of holding the annual meetings to about the middle of June. As it is we have about forty schools commencing within two weeks after the annual meeting as now held, and it does not give school officers a chance to select suitable teachers. Again, if the annual meetings were held before the close of the school, many a teacher would remain term after term and year after year in the same place.

ROCK COUNTY — FIRST DISTRICT.

JOHN W. WEST, SUPERINTENDENT.

The course of study for country schools has been the chief subject of importance connected with our school work during the

Reports of County Superintendents—Rock.

past year, and yet not as much has been accomplished toward securing its introduction as I had hoped. While only three additional districts have formally adopted the course, from twenty-five to thirty teachers have followed its principles and directions, thereby demonstrating practically its superiority over the old method. To classify properly the schools and to retain the different grades distinct and separate are, at present, the most serious difficulties that teachers have to contend with, and will continue to be so long as we have such frequent changes of teachers and no definite system of keeping records. I have strongly recommended for use Lunn's School Register, but as yet only five or six districts have adopted it. I think, however, it or some similar one will soon be in common use. The more I see of the working of the course, the better satisfied am I that its introduction and adoption depend largely upon the interest manifested by teachers and their ability to bring out its hidden excellencies. District officers are not generally stubborn nor willful respecting this matter, but they must become convinced of its utility by actually seeing its practical working, then will they manifest an interest, and heartily indorse it. In order to become better acquainted with the wants of pupils and to aid in the classification of schools during my visits, I requested each teacher of the more advanced schools to hold an examination near the close of the term for the special purpose of furnishing me their papers; the questions used were selected by the teacher under my advise, from principles set forth in the course. Fifteen teachers responded to the request during the past year. I carefully examined these papers and reported the pupils' standing. Some specimens presented by pupils from eleven to fifteen years of age, would do credit to maturer and better developed minds. I feel amply repaid for my extra labor, in the increased interest manifested by teachers and pupils in the course. Two ladies of the town of Plymouth passed a creditable examination for graduation under my direction and were granted diplomas.

Reports of County Superintendents—Sauk.

As usual, I have visited all the schools under my supervision once, and about two-thirds of them twice. Total number of visits is 143. I have done all in my power to make these visits pleasant and profitable. That they have been a means of encouraging teachers and aiding pupils, I am satisfied.

One new school building has been erected, and two others are under contemplation.

We held our annual institute in the spring at Evansville, under the direction of Prof. Salisbury. The institute work was calculated to meet the wants of teachers. Good attention and a lively interest prevailed throughout the two weeks. The lecture by Rev. Henry Faville was well attended and highly appreciated by those who had the pleasure of hearing it.

SAUK COUNTY.

JAMES T. LUNN, SUPERINTENDENT.

Last year's statistics ranked Sauk among the foremost counties in the State in respect to the small percentage of children of 7 to 15 years of age, subject to the compulsory law, who were not enrolled as pupils in accordance with its provisions, which admit certain excuses for non-attendance.

It is a matter for regret that the private schools, mostly secular, of which there are some ten or more in the county, are not legally obligated to report their patronage to the same extent as the public schools, so that full educational data may be had for public information, and to discover how many of the 2,836 non-attendant at the public schools are being educated in other schools. The total school expenditure is the largest in the history of the county, and constitutes a most practical token of the interest of our citizens in the welfare of their youth.

During the year, seven new school-houses have been erected at a cost of \$8,196, nearly half of which was for a brick veneered

Reports of County Superintendents — Sauk.

house of four departments, on the south side of Baraboo. It is thought that this will for some time relieve the overcrowding of rooms and teachers, that has for a year or two back retarded schooling in that thriving village. North Freedom also erected a two-department building of like construction, at a cost of nearly two thousand dollars, and now has a school building which would do credit to many older and larger places. The increasing demand and reward for labor of all varieties draw many teachers to more congenial and stable situations, which necessitates many young and poorly qualified beginners to fill our complement.

The course of study for country schools, after being improved and enlarged by the State Superintendent, was printed and a copy sent to every country district in the county, and is now in fairly successful operation in about one-third of the schools, in which were our most progressive teachers. Another one-third of the schools have the course in very crude operation, and in the remaining third it is a flat failure, on account of local opposition, or of the apathy or worse trial of the teachers, many of whom stand shivering on the brink, and fear to launch away from their memorizing, routine habits to form others of more thoughtful variation and modern plan.

Tasty and appropriate diplomas have been awarded to twelve pupils, who, on searching written examination, seem to have fairly mastered the work laid down in the course.

School Hygiene, by the State Board of Health, in a neat pamphlet of 34 pages, is distributing to the teachers more information concerning the health of pupils than has ever previously been laid before them, and must result in remedying some injurious conditions and practices of long standing.

Reading for teachers is a new scheme to remedy the lack of general information in our teachers by a course of varied reading covering four years. The fact that nearly 50 copies of the first book on the list were subscribed for at the Reedsburg institute

Reports of County Superintendents — Shawano.

alone, is a cheering evidence of willing interest in this venture, which, if successful, must aid the instruction in our schools.

Mixed text-books are far too common, owing to the carelessness or ignorance of school officials, many of whom adopt a set as provided by law and then allow any one to introduce any other book he pleases, until the books in some schools are confusion confounded and the teacher's time is cut into fragments unfit for teaching.

Desolate school sites are in a great majority, and 100 out of 160 sites are unenclosed, serving as hog and cattle pastures, or growing up to grubs, instead of being neat, shady inclosures to impress taste and respect for public property in children, many of whom see nothing to like outside or inside their school-houses.

SHAWANO COUNTY.

WM. SOMMERS, SUPERINTENDENT.

Our usual teachers' institute was conducted by Prof. A. F. North. It was not as well attended as it would have been, if it had not been for the Indian scare, which was just at its height at that time; but those present acknowledged the benefit received. At the close of the institute it was unanimously agreed, if we were to live another year and the Prof. being able, that he should be with us again, for his geniality and faithfulness to his work won for him, not only the teaching fraternity, but a great many other friends who are highly interested in the educational welfare of the county.

The school-houses are assuming a brighter aspect. We have a few nice brick school-houses now, which adorn the spots where first stood old log huts, and frame school-houses are being built now in general, notwithstanding their locations are in the back-woods.

As this is my last report that I will make to your department regarding the schools of this county, I would say that I have

Reports of County Superintendents—Taylor.

made myself acquainted with the condition and general mode of management of older counties of the State; and I find that, though we do not cut any figure on the stage of progress, the schools of our county are in no respect inferior to those of other counties.

And as for our teachers, I would say that I am proud of them, among whom we have some with very rare attainments. It is surprising sometimes to see what results are produced by experienced teachers over those who are novices in the profession, though they may be crammed full of the learning which the higher institutions afford. Odd as it may sound it is nevertheless true. The learning is there, but not the judgment for good school room management; but as the most will generally adapt themselves to the suggestions of old and successful teachers, it does not take long before they are stars in the profession.

I wish to express my hearty thanks to you for your kindness and the friendship that has existed between us during our official relationship.

TAYLOR COUNTY.

J. B. ANDERSON, SUPERINTENDENT.

I have to report quite a scarcity of teachers in this county, and have been under the necessity of granting special permits in some districts. This scarcity has been brought about mainly by the false economy of many of the districts, which have cut down wages to \$18 to \$20 per month, thereby discouraging competent teachers from the older and more advanced counties from coming here to teach. It is noticeable that those districts which maintain a fair rate of wages have satisfactory schools, and report a good percentage of attendance; while these districts which have adopted the economizing process are, as a general thing, engaged in district brawls, and have poorly attended and poorly conducted schools, presided over by young and inexperienced teachers.

Reports of County Superintendents — Trempealeau.

TREMPEALEAU COUNTY.

STEPHEN RICHMOND, SUPERINTENDENT.

Since my last annual report, two regular examinations of teachers have been held. At these examinations, 195 applicants were examined and certificates granted to 145.

The fall examination this year was more satisfactory than any I have held, as the number of six months' certificates dropped from 46, granted a year ago, to 10 this fall, thus showing that the literary attainments of our teachers are improving. By another year, limited certificates should disappear entirely.

Our last institute was held in the village of Arcadia, for a term of two weeks. It came early, as in this county it must, if the teachers of our village schools, and those teachers who attend the fall term of Galesville University, be given an opportunity to attend. The session was very pleasant, successful, and interesting. Ninety-six members were enrolled, and an average daily attendance of 67 for the term had. The best of good feeling and interest continued throughout the session. We were favored with four lectures during the two weeks.

The association in this county did not accomplish a great deal last year, and for the reasons that the organization was new, and its possibilities were practically speaking, unknown to nearly all the teachers. A programme of work for the local meetings was not prepared; and the severe cold weather of the winter, together with the drifted condition of the roads, prevented the attendance of many. Still, the association is a permanent organization, and one which will result in much good to the teachers and schools. The teachers' library belonging to the association, now has 22 volumes. It is the intention of this body to increase the value of the library during the present fall and winter by expending one hundred dollars for books.

The pupils seldom enjoy a visit at the public school from their parents and school officers. This is a sad fact, and that this is so,

Reports of County Superintendents — Trempealeau.

is as unaccountable as it is unreasonable. The schools ought to be so visited at least twice a year, that their improvement may be known as well as their character and tone, and the nature and extent of the discipline enforced.

A course of study with programme of study and recitation, has been adopted for the ungraded schools of the county. It is substantially the one recommended by the State Superintendent in his circular of 1880, on the "Grading System." One copy was printed in pamphlet form for the benefit of teachers and school officers, and has been generally distributed throughout the county. Another copy was printed on large sheets of card-board and posted in the school rooms for daily use by teachers and pupils. All the schools in the county are expected to organize and follow this general plan. Its successful use depends upon the patient, persistent, and intelligent effort of the teachers.

A system of teachers' reports, to be made at the close of each term, has been adopted. They are based upon the course of study; and if insisted upon, they will lead to many practical results. When these reports are made, one copy will be filed with the district clerk, one forwarded to the county superintendent and one kept by the teacher. When properly made they will be a complete record of the school for the term for which made, showing the classification, attendance, absence, school population, compliance or non-compliance with the compulsory school law, the method used by the teacher in teaching the principal branches, and many other interesting facts. No experienced teacher doubts the utility of such reports.

Of the school children of this county, 2,179 were not in attendance upon the public schools a single day. The whole number of school-houses in this county is 91; while the number of school districts is 88. Last year, 98 teachers were employed in our schools, where 99 will be required to teach the present year. All the schools in the county, except one, in the town of Ettrick, were visited by me during the year. In all, 202 visits were made to

Reports of County Superintendents — Vernon.

the schools, nearly all visited twice and a few oftener. Of course, all the teachers were not eminently successful; still in nearly all the schools, the organization, the methods of teaching, and the efforts of teachers and pupils were much better than ever before. With but few exceptions our schools were well taught. A quickening spirit seems to be giving our school work a new impulse. Out of 145 certificates granted during the year, only 40 were to male teachers. This class of teachers seems to be rapidly decreasing in this county, owing chiefly, I think, to low wages and short school years.

VERNON COUNTY.

WM. HAUGHTON, SUPERINTENDENT.

I had hoped the showing for school attendance the past year would have exceeded that of 1880, but instead it falls slightly behind it. The severity of last winter, the frightful storms, deep snow, heavy drifts, and distance of pupils in the rural districts from the schools prevented a number of the younger children from attending during the severe weather. I found from school visitation and from teachers' reports, in all cases rendered at close of terms, a large reduction during the month of February alone. Had it not been for this, our school attendance would have exceeded that of 1880.

Seven new and very comfortable school-houses have been built, and others repaired at a cost exceeding that of any former year, and the total amount outlaid for all school purposes gives an excess of \$1,105 over last year. There is likewise an advance in salary of teachers of \$2.50 per month capita. Here figures show, if not a large advancement, at least a steady growth in the right direction.

We are earnestly trying to carry out the "Grading System for Country Schools." Knowing that it has the approval of our best educators and that it has been compiled by able hands, we have

Reports of County Superintendents — Vernon.

been hearty in its commendation and zealous for its introduction into our schools. Yet it has been uphill work, and like all really beneficial and valuable things, wins its way but slowly. Only 37 of our schools adopted it the past year, though a copy of the circular was put into the hands of every teacher and every school board in the county, and urgent calls made on them to try its working.

There are still obstacles in the way, chief among which are irregularity of attendance, inability of young teachers, opposition of some old ones who see in every improvement on old methods only innovation or "new fangled notions," and lastly the indifference of school officers who think their whole duty is done when a teacher is hired and school opened.

Notwithstanding all this, we hope to see the "system" carried out in many more of our schools the present year.

Beside the distribution of these pamphlets, I have circulated a very large number of tracts from the State Board of Health and elsewhere on "Hygiene" and "School-house Ventilation," recommending everywhere the suggestions offered, and insisting that teachers see to the physical comforts and well-being of their pupils, as without this no lasting intellectual benefit can be conferred.

I have sought improvement in the buildings, better ventilation and the like, and I am happy to be able to add I have in a great measure succeeded, as may be seen by the increased outlay for the last year.

We are yet burdened with too large a corps of teachers. They keep drifting in from the other counties. Owing to the number of young aspirants in the field, mere boys and girls, and the system of underbidding, favoritism among school officers, and the like, many of our older and more experienced teachers are driven to more lucrative, though less congenial, employment.

A few of our normal trained teachers are idle, simply because

Reports of County Superintendents — Vernon.

they cannot teach for the low figures at which the younger and less capable offer their services. The youthful ambition is to teach, or have the name of doing so, no matter how small the remuneration; and then, in many cases, there is an uncle or aunt on the ground to win the place for them.

I deeply regret this state of things, but the powers of the county superintendent are so limited in this direction that reform seems impossible. To refuse a certificate to one who has passed an examination, and has answered seventy per cent. of the questions correctly, seems unwarrantable, and brings odium on the examining officer. This is charmed ground, and must be trodden delicately. I have refused very many applicants, not because of lack of education, but of judgment, of school tact, and of ability in management.

There is another cause for grievance, which I can not well reach. Several private schools were opened last winter, during the months our district schools were in session, and in a few cases alternated from the public to the private or foreign-speaking school, giving a month to each. Such a system can only distract attention of pupils, and can confer no real benefit, or advance the cause of education. It is to be hoped this will not be repeated, and that where schools teaching a foreign tongue are a necessity, they will be opened when our district schools are closed.

Several classes were examined from amongst the schools, and had diplomas given to those who had passed through the studies prescribed by law. This has helped to inspire pupils to more earnest effort. As in all things in their initiatory stages, this work so far has been very limited.

A teachers' association was held semi-monthly, at Ontario, last fall and winter, under the leadership of Mr. D. A. Mahoney, an able, scholarly, and hard-working teacher, who has won for himself a very enviable reputation in this county, and who seems to be a fixture, as principal of the Ontario graded schools.

Reports of County Superintendents—Winnebago.

WINNEBAGO COUNTY.

W. W. KIMBALL, SUPERINTENDENT.

In the southern part of the county teachers' meetings were held monthly at Omro, this being the most accessible point. They were well attended, and much good work was accomplished. In the northern part of the county meetings were called at different points, and with one exception, where they had never before been held. Much interest was taken in them by the district officers, as well as by the teachers. The grading system was taken as one of the leading subjects for discussion through the year.

I have tried to visit each school at least twice; have visited some more than this. Whenever possible, I have met the school officers.

I have examined nearly all the schools in the fundamental rules and principles of their work.

The institute for this county was held at Oshkosh and nearly 81 teachers were enrolled; all but 4 of these will teach in the county this winter.

Prof. Robert Graham had charge, assisted by the greater part of the Normal Faculty. Pres. Albee, Prof. Dennis, and Miss Anna Moody lectured daily; and, as Pres. Albee stated, gave us their best thoughts. Hon. W. H. Chandler spent two days at the institute and gave a very interesting and instructive lecture, in which he stated, "he considered this one of the best institutes he ever attended." We feel that a great good was accomplished by bringing the schools of the county into actual contact with the Normal School. They have become better acquainted with each other. The objects and advantages of both are better understood. The barrier is broken which prevented that sympathy necessary to co-operation. I shall be sadly disappointed if the schools of this county do not accomplish better work in grading the schools and in building up character in the year to come than in any year previous.

Reports of City Superintendents — Fort Howard.

EXTRACTS

FROM

REPORTS OF CITY SUPERINTENDENTS.

FORT HOWARD.

GEO. RICHARDSON, SUPERINTENDENT.

The past school year closing in this city on the last of June, has been one of unexampled prosperity for the educational interests of this place. A fair and liberal policy adopted by the school board, a thoroughly competent and indefatigable principal, and an assistant in our high school, with an earnest and faithful corps of subordinate teachers, aided in a marked degree by the efforts of the parents, have awakened an interest in our schools that I think will be of lasting benefit.

The closing exercises of last year were of a peculiarly interesting nature. A class of twelve, ten ladies and two gentlemen, composed the graduating class. A very thorough and complete examination was held before the candidates for graduation were allowed to receive that honor and the diplomas; the board and superintendent having notified the class at the commencement of the year that no pupil would be allowed to graduate except on actual merit, and that mere attendance without the requisite attainments would not be accepted. This notice, I was assured by the principal, was the means of arousing additional vigor in the students, and produced results that are an honor to them and a merited tribute to the ability of their teachers.

The long monotonous essays usually presented at commencement exercises were forbidden. In addition to a short essay,

Reports of City Superintendents — Janesville.

each member of the class was required to give an off-hand lecture before the audience on some one of the different sciences which he had studied. Without exception each was admirably delivered.

Our schools opened on the first Monday in September, for a term of ten months, and start off with a fair prospect of a still more profitable year than last.

A number of changes have been made in the corps of teachers, the principal and the assistant in the high school being retained. In the other departments, I think we have secured better talent than we had before.

JANESVILLE.

ROBT. W. BURTON, SUPERINTENDENT.

Janesville's experience, as a system of schools, is not so varied as absolutely to require an annual appearance in your report, while other systems, far more elaborate than our own, take no space. Those who fail of representation here, doubtless excuse their absence on the ground of publishing their own local report. For the good of the cause at large, however, a synopsis of said reports, at least, should appear under the head of "Reports of City Superintendents," in the general annual statement of school affairs.

The census of the year shows a population of 3,384 persons of school age, while of these 1,697 have, for a longer or shorter period, been members of the public schools. There have been enrolled 175 more in the private or church schools of our city. In other words, only 55.3 per cent. of the children of school age are receiving school training.

On the part of numbers, we have maintained our usual high standard, reaching 94.5 per cent. in attendance; while in the "percentage of attendance of pupils on whole number enrolled during the year," we have slightly advanced, reaching 78 per cent. The fact that we have held the even tenor of our ways to

Reports of City Superintendents — Janesville.

the degree indicated above, is very gratifying, especially when we recall the stormy period of last winter.

In former reports I have freely spoken of the influence exercised by our manufacturing interests upon the youth of our city, alluring them from school to engage in the activities of shop and factory. Instead of this influence weakening, it is likely to be materially strengthened by the multiplying of looms. Upon the sight of the old woolen mill, recently destroyed by fire, is in process of erection a new structure of vastly increased proportions, calculated to give employment to hundreds of young persons, where only tens of operators were before engaged. These conditions simply add new force to words formally spoken in behalf of that class of young people who are thus deprived of a common school education. Few cities in the West have more pressing claims for the establishment of a night school than our own. That such a school is organized in connection with a commercial school does not relieve our public school authorities from their obligation to provide school privileges for the increasing number by occupation barred from the daily public school. A free school is their right, and that right will be duly respected, I doubt not, by our Board of Education when they shall give the subject the attention to which it is entitled.

Realizing fully that upon fresh acquisitions of knowledge by the teacher depend his efficiency and vigor in the school room, we endeavor to make the teachers' meetings both interesting and profitable. At these absence is very rare, and tardiness is unknown. These meetings occur semi-monthly, affording opportunity to discuss general questions of school management, criticise means and methods, prohibit what seems to tend to evil, and commend what gives promise of good. The subjects at present pursued by the class are grammatical analysis, physical geography, and American literature. To these exercises, teachers, as a rule, come well prepared, and so all are saved from deterioration, while many make them occasions for adding substantially to their stock

Reports of City Superintendents—Stevens Point.

of knowledge. Once a month, these meetings are enlivened by the presence of our efficient clerk of the Board of Education, accompanied by the pay-master, J. M. Haselton.

From natural impulses, our Board of Education, composed of excellent men, favor a liberal policy in its management, regarding it a vital principle in school economy. During the year, the salaries of principals in our six-room buildings have been increased \$50 each. The same has been done for the salary of third assistant in the high school.

It is the purpose of the board to add to our high school library from time to time, such works as are of standard value as books of reference. To this end, initiatory steps have already been taken.

STEVENS POINT.

FRANK L. GREEN, SUPERINTENDENT.

The percentage of enrollment computed on the number of school age, resident in the city, was 62; the average percentage of attendance upon actual membership 84.6, one and a half per cent. lower than the year before,—a fact that is more than accounted for by the prevalence of contagious diseases during a large part of the year.

Certificates were issued by the superintendent to 16 persons, 4 of the second grade and 12 of the third; 14 of these have held positions as teachers in our schools. I am happy to say that I believe the schools as a whole have at present a better organization and a more scholarly and efficient corps of teachers than at any time since my connection with the schools of this city.

The financial exhibit for the year shows an expenditure somewhat in excess of the previous year. This is owing, for the most part, to the necessary preparation and organization of a new department, and the consequent increase of the teaching force.

The total enrollment in the high school for the year was 99,

Reports of City Superintendents—Stevens Point.

with an average membership of 55. Of this number, 59 were in the common branches, 37 in algebra or geometry, 40 in the natural sciences, and 21 in the study of Latin. The average age of the large class promoted to the high school in April, was about 14 years, 6 months. The average age of the graduating class was 17 years, 4 months.

The constant use of the library is one of the best features of the school. The books of reference are in unceasing demand. In February, 47 books for general reading, chosen with especial reference to the wants of the young people, were added, and the appreciation of the pupils was immediately indicated by the rapid increase in the number of books drawn. During the whole of the previous year, only 14 books were drawn for reading outside of school hours. From February till the close of the year, 316. The school was also supplied in the spring with singing-books and an excellent new organ. These have contributed very much to the interest of the school, and added very materially to the success of the graduation exercises at the close of the year.

Of those who completed their studies here at that time, four are in the State University, two in other collegiate institutions, two are teaching, and two are in business. No better proof of the usefulness of the high school is needed than this, and no stronger argument could exist for its liberal and intelligent support.

In conclusion, I think it may be truly said that our schools are taking a firmer stand. There is less friction, more certain aim, and more successful accomplishment.

What our schools need most of all is the interest and sympathetic co-operation of parents.

University of Wisconsin.

EXTRACTS

FROM

ANNUAL REPORTS OF STATE EDUCATIONAL INSTITUTIONS.

UNIVERSITY OF WISCONSIN.*(From the Report of Hon. Geo. H. Paul, President of the Board of Regents.)*

For all present purposes, the University is now provided with nearly a sufficiency of buildings, and these buildings are sufficiently commodious and complete for the accommodation of the present number of attendants, with the single exception of University Hall. This was one of the first buildings erected upon the University grounds, and it still remains in substantially the same condition, as to any educational use, as when originally constructed. At the present time, its interior is wholly unfitted for the purpose of recitation rooms, to which it is necessarily appropriated.

Since the date of my last report, the preparatory department of the University has been superseded, and the higher courses of instruction have been strengthened and advanced. In the departments of practical knowledge, including those of agriculture, civil and mechanical engineering, mining, metallurgy, and mechanics, the interest and progress have been marked. Ladies' Hall has been reorganized upon conditions which render it exceptionally attractive as a residence for young women attending upon University courses of instruction. The military discipline of the institution has been largely improved under the instruction of an accomplished officer of the regular army, and general good order

University of Wisconsin.

has been perpetuated and promoted, largely as a consequence of wholesome methods of government, commanding and enlisting the cheerful acquiescence of the students.

In the law department the number of attendants is slightly diminished, particularly by reason of a wise modification of the conditions of admission and graduation. As now organized, a diploma of graduation from this department possesses a positive value; and probably no school of the kind exists which affords more desirable facilities for instruction in the principles of law.

(From the Report of John Bascom, President of the Faculty.)

The agricultural department is for the first time beginning to strike root a little, and to promise some growth. In order that this growth may meet with favorable conditions and so be continuous, we shall need almost immediately an increase of instructional force. Prof. Henry is overburdened with his present work, while additional work will be required in Chemistry and Botany. The present hopeful condition of the department of agriculture should be met, on our part, by every effort necessary for complete success. We cannot advantageously allow any interest to anticipate funds which should be devoted to this purpose.

The experiments in ensilage and in the manufacture of syrup and sugar, which were entrusted to the agricultural department by the last Legislature, have been vigorously and successfully prosecuted.

There has been for the past half-dozen years a steady alteration in the relative number of students pursuing the three leading courses of study: the Ancient Classical, the Modern Classical, and the Scientific. In 1875 the number in the University belonging to the Ancient Classical Course was thirty-nine; to the Modern Classical, twenty-six; and to the Scientific Course, one hundred and twenty. In the year which has just closed, the respective numbers are sixty, seventy-one, and seventy-six. The numbers in the three departments are becoming nearly equal. This fact seems to be due to the variety of influences: (1) The

University of Wisconsin.

terms of admission in the Scientific Course have been somewhat enlarged. (2) Young women are preferring the Modern Classical Course. (3) The strong feeling in favor of a scientific education as opposed to a classical one, seems to be somewhat abated.

In the past two years, we have granted a somewhat extended election of studies, especially in the Junior and Senior years. This method has some very positive advantages, and is also attended with some serious dangers. (1) It enables the student to escape, at least in part, labor for which he is peculiarly unfitted, and the results of which are correspondingly slight. One who has an incapacity for Mathematics, for instance, and an aversion for it, is allowed to take the least amount consistent with his other work. (2) On the other hand, any peculiar powers and tastes are by this election made fully available to their possessor. (3) The student may also thus gain the great advantage and pleasure of knowing some one thing peculiarly well. (4) He may also, if he has a special purpose in view, adapt his work to it from an earlier point in his training.

Against these advantages are these disadvantages: (1) Indolence may express itself as an inclination toward easy studies, and a disinclination toward difficult ones. (2) Special work and special knowledge may not be sufficiently supported by general knowledge and knowledge in associated departments, for a large and permanent success even in the narrow field chosen. (3) The student may easily form a purpose prematurely in making up his line of work, and may not, in the choice of means, pursue it wisely. Many students in a college course are but partially prepared to define successfully their own ends and methods. (4) There is a fashion for electives overtaking educational institutions, which easily leads to an undue neglect of established courses. (5) The system of electives, if we are to judge by college catalogues, by the variety of advanced studies they offer, by the probable attainments of the students of these institutions, and by the amount and vigor of their instructional force, is giving rise to an ambitious

Normal Schools.

and pretentious method which is liable to scatter and waste force rather than to accumulate it, and to lead to superficiality rather than to depth of knowledge. An institution of learning can hardly suffer more severely in any way than by attempting to get in advance of its true position. While granting electives, therefore, we have not allowed them to break up the solid outline of each distinct course, nor have we pushed them into ground in advance of our appropriate collegiate work.

NORMAL SCHOOLS.

(From the Report of J. H. Evans, President of the Board of Regents.)

The city of Milwaukee has voted an appropriation of fifty thousand dollars for the erection of a Normal School building, plans for which are being prepared by an architect under direction of the Executive Committee; these plans will be submitted to the Board for approval at their next meeting. [The site for this building was selected by the Board, at a meeting held in that city last July.]

It has been the policy of the Board of Regents to give every encouragement and afford every facility for making the schools under their charge as distinctively professional in character as the material attracted to them will admit. There is, and must be for years to come, much academical work done in our Normal Schools. There is, however, a steady increase in the amount of professional training given. Teachers, too, are becoming more skillful in blending the professional with the academical, in using the instruction needed for the understanding of a subject as an illustration of a principle of teaching. This carrying forward theory and practice abreast is a slow and somewhat difficult process, but it is believed that the results are not less satisfactory than when they are carried on separately. In securing teachers for these schools it has been the aim of the Board to find those who are specially fitted to do this work in its two-fold aspect. Not every

Normal Schools.

one who has a good method of presenting a subject can give the principles upon which this method is based; yet without this ability he cannot give the professional training required. On the other hand, there are teachers whose theory is excellent, but who cannot adequately exemplify their theory by practical teaching. Such are not qualified for the best work in these schools.

The Kindergarten established by the Board at the Oshkosh School has been in successful operation since May, 1890, and has fully met the expectations of its friends. It is affording opportunities for a large number of our Normal pupils to observe and participate in the practical methods of this system of training children, a system which has in view the harmonious development of the mental, moral, and physical nature of the child. It cannot be expected that the influence of this department of our Normal Schools will have any great effect upon the common schools of the State for years to come; but there can be no question of the good influence it will exert upon the comparatively few teachers who have the privilege of pursuing the course of study and seeing the work of this "new departure" in primary education, which is now receiving the earnest approval of the most thoughtful and philosophic educators of our country.

An important addition has been made during the year to the Platteville building, by erecting a two-story wing, extending the south front westwardly. The addition is 45 by 65 feet, substantially built of native blue limestone to match the older structure, and cost, including heating and ventilation, ten thousand dollars. It affords a new entrance hall and stairway, a primary school room, six recitation rooms, and two cloak rooms. The Platteville building is now adequate to the necessities of the school, being about the same in size as any of the other three buildings.

(From the Report of D. McGregor, President of the Platteville Normal School.)

The school has just completed the fifteenth year of its existence. For two years after its establishment, it was the only State Normal School in Wisconsin, and enrolled during that time

Normal Schools.

an annual average of 260 members. For several years past, the annual enrollment has fallen very little short of 450 members, and this has been reached with the Normal School attendance shared by four schools in the State. At three different times it has been found necessary to enlarge and otherwise remodel the building, to meet the growing demands of the school. From three departments, the number has been gradually increased to five; and the Normal proper has outgrown, by more than one-half, the accommodations originally provided. The course of study, too, has been extended, so that now four years are required for completing the full course, while in the first years of the school only three were required. The standard of entrance examinations, also, has been raised twenty per cent. of what was at first established. These points in the history of the school show that it has been managed in a progressive and liberal spirit, and has been fostered into a growth far exceeding the expectations of its original promoters. Whether the quality of the instruction has kept pace with the growth of the school, no statistics can show. The aim of teachers has, however, always been to make the instruction the best possible. The constantly increasing demand for graduates and under-graduates to teach in nearly all classes of schools, encourages the belief that the character of the instruction given meets with very general approval.

The most noticeable and serious defects of preparation, as shown by the entrance examinations, are found in branches requiring full statements or explanations in the language of the pupil. This arises from poverty of vocabulary as well as from inability properly to interpret and use the words with which he has a fair degree of familiarity. Not a few candidates come with minds filled with rules and formulæ, but with little power to use these to any practical purpose. Doubtless, in most schools, the study of arithmetic is encouraged more than any other branch, and in some schools, it is claimed, more than all others. It ought, therefore, to be, and doubtless is, the best understood. Yet if

Normal Schools.

much less time were devoted to arithmetic, and a small portion of that time were spent in changing the questions given into language which the pupil fully understands, we should have fewer failures even in arithmetic. Many of the apparent failures in arithmetic are really failures to comprehend the language of the problem.

(From the Report of J. W. Stearns, President of the Whitewater Normal School.)

There have been, and still are, great differences of opinion as to what should be undertaken in the professional course of a Normal School. Those who are impressed with the necessity of immediate improvement in the common schools, the slight attainments of most of those who seek admission to the training schools, and the short time they are willing or able to pass in them, have been disposed to magnify the importance of teaching methods, and to hold it unwise, if not impracticable, to attempt to teach anything of the philosophy of education. The latter work belongs to the university, it is said. On the other hand, it is affirmed that the superior rank and efficiency of the German Normal Schools are due to the fact that they have persistently taught the history and science of education; that the study of the lives and theories of distinguished educators cultivates a professional spirit, tends to prevent the formation of narrow hobbies, and the trying of methods whose defects have been long since demonstrated; and leads to a philosophy of education, which vitalizes methods, and renders them fruitful. It is becoming more and more evident that American Normal Schools must adopt this view. It is evident that success in teaching, like success in any other difficult art, depends upon a clear perception of the ends to be attained, and an adaptation of means to secure them. Such perception is not intuitive. It is not possible, except to those whose culture has been carried far enough, to enable them to deal with the elementary notions of psychology. The best methods fail of their end unless intelligently applied; and how

Normal Schools.

can they be intelligently applied by those who have not clear views of the ends sought, and the relations of the means used to them. Methods are not fixed and absolute, but varying according to varying circumstances, and wise only when wisely used.

The impression has prevailed with some persons that it is the policy of the Normal School to refuse to recognize the work done elsewhere by those who wish to attend it, and to require of them a needless repetition of studies. Nothing could be farther from the truth. High school graduates and others who wish to prepare themselves for teaching will be given every reasonable facility for completing the course of study in as short a time as they can accomplish the work successfully; but the strictly professional work will require them to spend at least one year at the school before they are entitled to a certificate, and at least another year in order to gain a diploma. How much longer time they will require, will depend on themselves, and the solidity of their acquirements.

(From the Report of Geo. S. Albee, President of the Oshkosh Normal School.)

During the work of 1879-80, the influence of the great tide of returning prosperity in general business, was felt in the diminished ratio of the number of men in our school, and the professional spirit of those present was marred by a feeling of vague unrest and uncertainty as to whether it "would pay" to prepare for teaching, with the expectation of continuing in that business any considerable part of one's life.

During the last year, there has been a marked increase in the demand from this school for good teachers — more than we could possibly supply were called for at a perceptible increase of wages offered. During this year, also, the ratio in the attendance of men has increased to the former high per cent. It is probable that this is not an isolated experience, but indicative of a readiness to prepare to meet any demands the community may make towards improving the quality of teaching and the character of our schools.

Normal Schools.

The demand for excellent teachers has heretofore been small, because of the generally low estimate of the purpose of teaching, and the certainty that excellent school work would greatly increase the expense.

It has been said that the cost of our public schools would be fully compensated if they did nothing more than train children to a prompt and regular employment of time. With equal truth it may be affirmed that the Normal School is worth fostering, if it succeeds in clearly impressing the truth that school work is the development of skillful thinking and habits of close observation, with the imparting of mere information always subordinate.

In this age of multiplied and rapidly accumulating knowledge, the field is so vast that teachers are importuned by superintendents, parents, and pupils, to be prepared to impart the maximum of knowledge in a minimum period, regardless of the condition of the youths' energies, at the close of the school work.

With this sentiment so strong, there is little fear that teachers will be permitted to lag far behind in mere acquirements. It has, therefore, been made a special characteristic of the Normal work during the last year to more definitely present the human aspect of the teacher's work in all exercises.

The student is, under each teacher, required to defend his subject, his logic, his language, and his manner, in view of his future duties as *trainer* of minds. This method has tended to diminish, in some degree, the amount of attainment secured, and the students have taken no less fullness of knowledge. In fact, most branches have been left with certain topics undiscussed, from lack of time in the method pursued, although the time would have been ample for a "fattening process."

(From the Report of W. D. Parker, President of the River Falls Normal School.)

During the year, practice has been greatly expanded, bringing every Normal student into vital sympathy with it, and into vigorous activity for its excellence. The scheme of practice is pre-

Normal Schools.

ceded by definite observation that provokes inquiry as to reasons for specific procedure of model teachers, and this inquiry at once becomes the sustaining power for painstaking study of methods—practice proper, under supervision, coming to correct and reinforce the theoretical conclusions of students as to the real merits of their opinions. The actual professional work has been directed in the channel, first, of school law; second, of school organization and instruction, reaching out into methods in each branch of common school study. The amount of real investigation that students have made to determine the reasons for actual procedure, is a most hopeful sign of progress for district schools. Teachers whose methods are unchallenged by intelligent supervision, tend to drift unreflectingly into methods that are only accidentally philosophical; imitating others, or teaching as by accident, they select methods with little or no reference to the vital relations of the method to the child's receptivity. Non-supervision accounts for oral spelling when thoughtful persons realize that written spelling is the uniform practice out of schools; it also accounts for the dreary reading lessons, in which not to call words at sight and not to understand the writer's thought are average conditions; whereas, to read silently the printed page with the mind open to impressions, is the object of reading nearly everywhere but in schools.

That some students attend the Normal for a short time and depart with the bare thought of the manner of the school, using it to the detriment of district schools and to the scandal of the Normal, is true; that some students, owing to success subsequent to attendance at the Normal, feel that return to the Normal is unnecessary, is also true; but that the average student is pervaded with high aims and with the purpose of the Normal to do coherent work with vigor, is true, and he becomes a representative of the Normal wherever he may be found; and experience shows that even the young men and women who are joined in wedlock soon after receiving the impress of the school are far from affording an argument against the system of free Normal instruction, as

Reformatory and Charitable Schools.

is urged; but on the contrary, they carry to new communities, remote from educational centers, to which their determination to general industry invites them, the most important factor that can be contributed to any community, found in the habits of clear thought, in scholastic prevision, sobriety in all actions, and definite plans for good citizenship, now and hereafter; and that many of Wisconsin's Normal students find homes beyond its territorial limits, is true, thus contributing unmistakably to the chief wealth of other States, so similarly Wisconsin receives accessions, giving a stimulus to educational thought.

REFORMATORY AND CHARITABLE SCHOOLS.

(From the Report of G. H. Reed, Principal of the Department of Instruction in the Industrial School for Boys at Waukesha.)

Number under instruction at the commencement of the year.....	430
Number newly committed during the year	90
Number returned during the year.....	5
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Number under instruction during the year	525
Number that left during the year	153
	<hr/>
Number now in attendance	372
	<hr/>
Of the ninety received —	
Could not write.....	58
	<hr/>
Began reading from Chart.....	12
Began reading from First Reader.....	33
Began reading from Second Reader.....	36
Began reading from Third Reader.....	5
Began reading from Fourth Reader.....	2
Began reading from Fifth Reader... ..	2
	<hr/>
Total	90
	<hr/>
Entered one of the primary departments	81
Entered one of the higher departments.....	9
	<hr/>
Total.....	90
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The boys are divided into two classes, which alternately work and attend school. In each session of school there are five departments. The course of study for each session is the same.

Reformatory and Charitable Schools.

In each department there are three classes, and classes are promoted from one department to another, after passing a written examination prepared by the principal.

The great difference in the age and natural ability of the boys, and the frequent changes caused by boys going out and coming in, render the strict grading which is possible in our public schools impossible here. We have therefore thought it best, and have encouraged boys who were ambitious and more mature than their classes, to work in advance, and thus progress more rapidly in the school.

Frequent reviews and thoroughness are secured by written examinations in each school, except the lowest primary, once in eight weeks, upon the ground passed over in that time.

The school in the Correction House is necessarily ungraded, and no special report is made of that, the boys being counted in particular departments to which they belong.

(From the Report of Mrs. Mary E. Rockwell, Superintendent of the Industrial School for Girls at Milwaukee.)

School Room Statistics to October 1, 1881.

Number in school November 1, 1880.....	109
Received during eleven months.....	69
Whole number taught during eleven months	178
Dismissed during eleven months.....	58
Remaining in school October 1, 1881.....	120
The pupils received were classified as follows:	
Division 1.....	23
Division 2.	18
Division 3, primary and kindergarten.....	28
	69
Pupils dismissed were from:	
Division 1.....	25
Division 2.....	10
Division 3, primary and kindergarten.....	23
	58
Present classification:	
Division 1.....	48
Division 2.....	44
Division 3, primary and kindergarten.....	28
Number in school.....	120

Reformatory and Charitable Schools.

During the labor of collecting the statistics, the case of each girl and boy has separately passed under review, and courage and hope are strengthened by the clearly apparent truth that in even the worst cases the condition is improved. I do not know of a single child of whom it can be said that it is worse in character or circumstances than when admitted, and we do know that the large majority are infinitely better off.

The increase in numbers has not been so great as during last year. This is due not to a decrease of commitments and receptions, but to the larger number of dismissals; the number received during eleven months just past being sixty-nine, to seventy-seven in the previous twelve months, and the dismissals fifty-eight for eleven months, to thirty-eight for last year.

Of 172 committed, since the beginning, to our care and guardianship until twenty-one years old, 109 are now gone out from the school altogether; but two of them have obtained majority. No one of them to our knowledge has again become a county charge, and the care of these outside wards, almost as many in number as the family within the school, is a large and increasing responsibility. The expense to the counties ceases on the settlement of a child in a new home, but the care of the managers does not cease while it remains a minor. These facts are full of practical suggestion to those who deprecate the expense of sending destitute children from the county courts to your guardianship.

(From the Report of Mrs. Sarah C. Little, Superintendent of the Institution for the Blind at Janesville.)

During the year since October 1, 1881, eighty-four pupils—forty-six girls and thirty-eight boys—have been under instruction. Five others are still considered as members of the school, but as they have not been present during the time covered by this report, their names do not appear in the appended catalogue. Fifteen pupils have been admitted and twelve have completed their course of instruction. The average number in attendance has been sixty-four and three-tenths.

Reformatory and Charitable Schools.

The work of the school has been carried on by the usual methods, and the natural results of patient and steady effort on the part of both teachers and pupils have been obtained. There are always some pupils who have little appreciation of the importance of improving their time, and who appear to value school life more for the present pleasure it brings to them than as a preparation for the earnest duties of life.

If we aim to prepare our pupils to stand on an equal footing in the race of life with their more fortunate brothers and sisters, we must find ways to supply their lack of the large amount of information that seeing youth gain almost unconsciously from observation and desultory reading. This furnishes one forcible reason why we deem it necessary to give systematic instruction in some branches usually included only in the curriculum of higher schools.

A successful teacher of the blind learns never to assume that his pupil has any correct knowledge of the material world except what he has been taught; for although, of course, some by attention of friends, or by their own inquisitiveness, have acquired a fair conception of their surroundings, a larger number of those blind from early life have very partial and distorted ideas.

This suggests the importance of tangible apparatus. If an educator of seeing children values opportunities for his pupils to observe natural scenery, examine machinery, witness exhibitions of skill; calls their attention in the class room to flower, fruit, bird, stone, and shell, and thereby finds aid in training them to habits of observation and in forming correct ideas of men and things, the educator of the blind finds such aids indispensable. Seeing youth find pictures useful substitutes for objects; but pictures are of no avail to blind children. The mind that takes cognizance of the external world chiefly by means of hearing has need of correcting its conclusions by means of touch. Hence, tangible apparatus and a cabinet of natural objects, common as well as uncommon, become essential to successful teaching of the

Reformatory and Charitable Schools.

blind. Our present facilities of this sort are inadequate, and should be increased at an early day. Much valuable apparatus that was destroyed by fire in 1874 has not yet been replaced. I would recommend that at least \$150 be appropriated to this purpose during the ensuing year.

In previous reports I have called attention to the fact that it is necessary to put forth persevering efforts to secure the attendance of blind children in school. Some parents are indifferent to the advantages of education; some think it is of no use to attempt to educate a blind child; some negligently defer sending their child until he is past the best age for school life; some are ignorant of the existence of the Institution; some have mistaken ideas of its terms and object; some keep their child at home for the sake of the work he can do; and some naturally hesitate to entrust the helpless one of the family to the care of strangers. Undoubtedly it is the duty of those entrusted with the care of this school to endeavor to secure its advantages to all for whose benefit it has been established and maintained. To this end a variety of means are necessary. Circulars and reports of the Institution have been scattered widely. Correspondence has been used whenever practicable. In many cases personal visitation alone will suffice. This has been used with good results in the past, and when omitted for several years, the effect has been apparent in diminished attendance.

The next regular biennial session of the American Association of Instructors of the Blind is appointed to be held at this Institution, commencing on the third Tuesday of August, 1882. The meetings of this Association are always occasions of interest and profit, and I regard the holding of one here as a privilege which promises unusual advantages to our school in the future.

(From the Report of John W. Swiler, Superintendent of the Institution for the Deaf and Dumb at Delavan.)

The school of 179 pupils was organized in ten regular classes, under the care of a similar number of teachers; in addition, sup-

Reformatory and Charitable Schools.

plemental classes in articulation were formed of pupils from other classes.

The work of the year has been attended with success, and constant interest in study maintained. Two examinations were held during the term. The first in January, and the second at the close of school in June.

It is a high art to awaken the perceptions, develop the reason, and cultivate the judgment of congenital mutes, training them to use the eye for the ear, the hand for the tongue. The acquisition of the sign language is so slow that, under ordinary circumstances, ten years will not perfect the learner in its use. This being true, it appears that ability to instruct the deaf and dumb does not come as the free gift of generous nature, but as the result of practice, study, and observation. It is not desirable in any case that the little defective one, already afflicted by the loss of speech and hearing, should be deprived of the assistance of experts in the struggle for knowledge, or still further dwarfed by the mistakes of a new teacher. The beginnings are so far down in the mental scale that an analysis of the growth of language is often needed, together with a study of the mental processes of the lowest order, ere it is known how to begin.

Parents and guardians who wish to save time in school, and give their children a start at home, may be well repaid by teaching habits of observation, and giving them some instruction in writing.

Repeated efforts have been made to secure a teacher of writing and drawing, to develop a talent for drawing, which some of our pupils possess. All these children would profit by instruction in the first principles of drawing, and the observation of many of them is so keen that they quickly acquire skill in this direction. I need not enlarge upon the utility of drawing in the arts, but simply state that the deaf and dumb often display great taste for drawing and painting. The State can well afford to do something to ameliorate the condition of her defective classes, as she

Reformatory and Charitable Schools.

does in providing amusement for the insane, music for the blind, and she should further extend her beneficence by providing instruction in drawing and designing for the deaf. We bespeak your co-operation in urging the need of an appropriation that will permit the organization of a drawing class in this Institution, to give the elementary principles of free hand and mechanical drawing to every pupil in the school, and provide a more extended course of instruction for those who may profit by it.

(From the Report of R. W. Burton, Secretary of the Board of Trustees of the Soldiers' Orphans' Home.)

Since January last, the work of the office has been chiefly in connection with the distribution of the Ward and Smith bequest, at the same time exercising a general supervision over those for whose benefit it is distributed. Faithlessness in the case of a few guardians has necessitated our interference to demand the surrender of certificates at maturity, withheld from the ward, to recover moneys that had been misappropriated by the guardian; or to secure for the orphan real estate, purchased with his money by the guardian, and held in the latter's name under circumstances calculated to arouse suspicion.

One of the prime motives in issuing the circular [to those once inmates in the Home] was to learn with some degree of accuracy to what extent the Ward and Smith Fund shares proved advantageous to the holders of certificates. With a view of collecting the data from which to form a judgment, the question was asked, "To what use did you put the money you received from the Ward and Smith Fund?" Replies to this inquiry, as a rule, were free, full, and, in the main, very gratifying. The largest amount issued by the State Treasurer, up to date, to any one beneficiary, is \$65.88; yet this pittance has proven to many an orphan the "start in life." The boy places it as a loan, around which, as a nucleus, his meager earnings collect; it contributes to make good the claim of a homestead; or it goes for the purchase of a team to work the farm.

With it, the girl purchases a sewing machine by which she

Reformatory and Charitable Schools.

earns a respectable support for herself, and brings many little comforts to the maternal home. Its expenditure, by both boys and girls, for tuition at school or in music, is very commonly reported.

The educational advantages of these children since the discontinuance of the "Home" have been very limited. The district school has received most of them, while a goodly number, through the advantage of location, have been favored with a high school training. By dint of personal exertion and good management, a few have secured means to give them a few terms in our State Normal Schools. Three have already placed themselves among the college alumni; and as many more report themselves well advanced in college courses. The enterprise manifest on the part of very many in obtaining an education is very gratifying to us, as it can be regarded in no other light than the fruitage of the wholesome influences clustering about the "Home."

In the matter of business, the boys are well distributed among the various industries of our State, agricultural, mechanical, and manufacturing. To the most of these, the farm, of course, was the most accessible, and offered the readiest means of support. From this class many favorable reports have reached us, showing that as farmers they have not toiled in vain. In addition to this, we have chanced to meet, during the year, several young men whose boyhood was passed at the "Home," who now, by their neat appearance and manly bearing, give evidence of industry and thrift. As might be expected, most of those on the farm are at work for wages, but not a few have small farms of their own.

While very few of the older boys have married, the list of marriages among the girls is quite extensive. It is gratifying to note that, so far as we can judge from their personal reports, these young women have become the wives of thrifty men. Laboring, farming, lumbering, book-keeping, marble-cutting, wagon-making, blacksmithing, weaving, printing, etc., are among the occupations and trades followed by their husbands. Save one or two parties, all express themselves as happy in their new relations.

Reports of Visiting Committees — Platteville.

REPORTS OF VISITING COMMITTEES.

TO THE PLATTEVILLE NORMAL SCHOOL.

HON. W. C. WHITFORD, *State Superintendent*:

The committee appointed to visit the State Normal School at Platteville respectfully present the following report: The fact that Platteville is, or was, so difficult of access by rail must be the excuse of your committee for their infrequent and hurried visits. We greatly regret that we were not able to visit the school together. Our suggestions and criticisms must of necessity be very general in their nature.

One member of your committee, on his second visit, was pleased to see the newly erected and much needed addition to the school building. The excellent provisions for lighting, heating, and ventilating, lead us to hope that the new rooms will, by force of contrast, urge a speedy remodeling of some of the recitation rooms in the older parts of the building. The President's recitation room in particular is dark and gloomy. Sunlight and pure air are prime requisites for healthful study. The enlarging of some of the windows and the making of some new ones together with more adequate ventilation would add much to the health and efficiency of the school. These are days of remodeling. Modern innovation cares little to preserve intact those structures that do not welcome freely sunlight and pure air. In the new building we would especially commend the room intended for the Kindergarten. Sunlight and pure air are here in abundance. The spirit of Frederick Froebel would surely rejoice, could it see this beautiful room dedicated to the culture of budding minds.

As to the intellectual life of the school, much can be said. Every institution of learning, in a certain degree, stands by itself, is individual, has its own constituency and traditions. The same sec-

Reports of Visiting Committees — Platteville.

tion of country that maintained the Platteville Academy furnishes the students for the Platteville Normal School. The Normal Schools are not exclusively professional schools. Besides the technical work of preparing teachers, they do an important work in the way of general education. In the infancy of the Normal Schools it would be most unjust to judge them solely in reference to their technical work. Perhaps, in the course of time they will become full professional schools, taking their students from lower institutions and adding to the already acquired general education a knowledge of the best methods of developing the human mind. Now they attempt three things: to give acquisition, mental drill, and technical training; then, they will attempt only the last. The ideal purpose of the Normal Schools is not so much to teach arithmetic, grammar, geography, etc., as to teach how to teach those subjects. But the day is probably far distant when the elementary education will be done so well in our lower schools that the Normal Schools can devote their energies to purely technical training.

We were, on the whole, pleased with the instruction in all the departments. Under the present plan of the school, the training department is very important. In the grammar grade we found much of the imperfect work of the common schools. The systematic, hard work of the teacher can but partly overcome the effects of the bad methods or lack of method in early training.

Too much praise can scarcely be given to the primary grade. The wildest dream of the educator is almost realized here. To see such order, such naturalness, such quickening and expanding of the intellect will repay one for a long and difficult journey. How would the mental and moral power of the nation be increased, could every child in our country be led, in its first walks in the field of knowledge, by such wise and skillful hands. Here we found pupils reading with much more expression than in the higher departments of the school. The later years of school life are often spent in overcoming the evil results of imperfect

Reports of Visiting Committees — Platteville.

methods in earlier years. This is the waste in education. There is the same excellence shown in the teaching of other branches in the primary grade. Here the teacher works the virgin soil. Can any one see the results of such methods, and go back to the old ways of teaching children? With the Kindergarten added, the training department of the school will furnish rare opportunities for observing the best methods of instruction. We are happy to know that many of the teachers from the surrounding country avail themselves of the advantages here afforded. We are reminded, however, that teaching is so individual a business that no two teachers ever reach the same results in quite the same way. The observer, after his own gifts, should be inspired to greater excellence and not become merely an imitator.

The practice acquired by the Normal students in the training department is supplemented by lectures and text-book study on the theory of teaching. This subject under the skillful handling of the President is most interesting and helpful.

We observed everywhere in the school good order, and an entirely admirable spirit existing between students and instructors. While we recognize the fact that the great business of the student here is acquisition, and that accurate knowledge of a subject must precede the successful teaching of it, yet is there not great danger that a student who is preparing to teach the subject under consideration will make text-book study paramount, and thus lose sight of the other and more important ends of education? In the subject of English grammar, for instance, while definition is important, and exceptions to general rules must be noted, there is great danger of making these the sole ends of study. The time spent on the subject in our district schools is, generally speaking, worse than wasted. Although text-books on the subject have shrunk to less than one-half their former proportions and are still shrinking, yet this does not help the matter unless the end to be reached is clearly apprehended. All agree that the study of English construction, and practice in applying the rules to the

Reports of Visiting Committees — Platteville.

formation of sentences, is most necessary. To make the study of English grammar ultimate in correct speaking and writing; to gather from the study of geography, not a list of names to be forgotten within a year, but a picture in bold outline of the earth as God and man have made it; to get from reading, not definitions of emphasis and inflection, but the power to use the voice naturally in expressing thought,—to do these things should be the high purpose of the school teacher in this age when time is so precious. Let the future teacher be most deeply impressed with the practical uses of such acquisition, and let him shun those methods that would make all education seem but the preparation for some final technical examination in some dim hereafter. We would not be understood as saying that our good friends at Platteville are studying text-books in a slavish way; not at all. On the contrary, we think that nearly all the instructors use text-books wisely, understanding their tone, purpose, and value. We urge the point, because we believe it the great defect in most of the teaching in our district schools, and because it is to the Normal Schools which furnish so many of our teachers that we must look for practical relief from the evil.

That the library facilities are too limited, that the school needs apparatus, and that the museums should be increased, are matters felt by the instructors and recognized by the management of the school.

We cannot close our report without adding the hope that school officers and visiting committees will take a lesson from the example of the worthy President of the Board of Normal Regents, who, by his almost daily visitations and kindly interest in the school, contributes much to its advancement.

D. B. FRANKENBURGER,
W. H. RICHARDSON,
DAVID D. PARSONS,
Committee.

Reports of Visiting Committees — Whitewater.

TO THE WHITEWATER NORMAL SCHOOL.

HON. WILLIAM C. WHITFORD, *State Superintendent* :

The Board of Visitors appointed by you for the Normal School at Whitewater, for the year ending with August, 1881, respectfully submits the following report :

The comparatively brief time which a board of visitors, chosen from among those engaged in exacting occupations, can give to the inspection of the daily work in a large school, necessarily renders their criticisms and suggestions of less value than if they were the result of long-continued consecutive inspection ; nevertheless our visits to the Normal School at Whitewater were of such a character as to give us a fair insight into its methods and the work accomplished.

The situation and surroundings of the school combine beauty and healthfulness in an eminent degree, while the buildings in the main are commodious, airy, and well adapted to educational purposes. Had the same amount of room been provided for in the original plan of building, greater economy in expenditure and convenience of rooms might have been secured, together with finer architectural display. We allude to this because of the prevalence of false ideas of economy in the construction of public buildings, especially those designed for temples of learning. A building of comely proportions and convenient arrangement, one which illustrates beauty of form with adaptation to purpose, which is in itself an embodiment of the idea of completeness, is no small factor in the work of education, which for generations is to go on within its portals. How potent are external influences in the process of leading forth the mind into the fair fields of literature and science, cannot be fully measured, and certainly is seldom comprehended.

The general appearance and tone of the school were such as to merit commendation. The students were orderly, attentive, and apparently animated by a sincere desire for knowledge ; while the

Reports of Visiting Committees—Whitewater.

teachers came to their work with that preparation which is one of the prime factors in successful instruction. In two or three class rooms, however, we noticed a lack of energy and directness on the part of the teachers in conducting recitations, which resulted in a waste of time and tended to chill the zeal of the class and leave upon their minds vague and unsatisfactory impressions of the subject discussed. It is true that the most successful instructor is he who makes his pupils think and study most for themselves, but it is equally true that what is stated by the teacher should be in clear, terse, and direct sentences, and with an energy of manner that begets animation in the pupil. It is a good thing to set students to hunting for the answers to their own questions, as we were pleased to observe was done in several class rooms; but this may be carried to excess, resulting in discouragement of the very thing which it is designed to promote. When resorted to, the teacher should not fail to see that at the next recitation all the questions so referred are fully and explicitly answered.

Too much can scarcely be said of the value of practice teaching in a school whose primary and principal object is the training of instructors. Knowledge of the sciences and of the theory of teaching is indispensable, but that alone will not make a successful instructor—practice in the work of teaching is the ultimate test of ability and fitness for the arduous profession of educator, and nowhere can this practice be had to so great advantage as in the Normal School curriculum, where an experienced critic is at hand to point out defects and suggest the remedies therefor. What was observed in this department of the school was very satisfactory, giving evidence, as it did, of the truth of the propositions above stated. It is suggested, however, whether this important department of Normal School training may not be enlarged and made still more effective by so organizing it as to bring each student in the normal course successively into the work of each grade clear through the course, thus teaching by

Reports of Visiting Committees—Whitewater.

experience not only the methods of instruction, but the connection or relation of parts to the whole. Teaching is, in a very large sense, an art, and, as in the case of other arts, can best be acquired by long practice under the eye of a master. In this way, faults of method, manner, and expression can be prevented or corrected, and that, too, without necessarily destroying that individuality which is desirable in every trainer of youth. The true object of the department of practice teaching is not to cast every normal student in the same mold, but to see that he does not escape the molding process. Some of the teaching by students witnessed in our visit was very creditable and demonstrated the value of this kind of training; in other cases the lack of clearness and precision in the student-teacher showed how far short of fulfilling the highest aim of his chosen calling he would come, were he to pass from the desk of the pupil to that of the teacher without such training.

While it was gratifying to see that those indispensables of thorough education, a library and apparatus for illustrating the sciences, are not wanting in the school, it was apparent that these might be very considerably enlarged with great advantage both to instructors and pupils, and we believe that a wise liberality in this direction would prove one of the most important elements in the promotion of the grand object of our Normal School system. In the study of the sciences, seeing is, in a large sense, understanding; and daily access to a well-selected library is important, not alone as affording the information and recreation constantly desirable in the pursuit of a course of study, but as begetting the not less valuable knowledge of how to use books so as to make them the helps in education which they are designed to be. Books are the tools of the educational work, and their most successful use can only come after early and long familiarity with them. He who has not early learned to handle them intelligently, has missed a very important part of educational training.

General exercises are had each morning in the assembly room,

Reports of Visiting Committees — Whitewater.

and consist of singing by the pupils and a familiar lecture by President Stearns, or some member of the faculty, upon a topic suggested by current literature or the events of daily life, the object being to broaden the observation and quicken the thought of the pupils and so better equip them for the work of the teacher. The lectures given in our hearing were by the President, and were admirably conceived and presented, and conveyed lessons which will be found bearing good fruit in the humbler halls of learning throughout the State. It is the misfortune of many teachers in our district and primary schools that they confine their professional work entirely to the bare inculcation of the lessons of the text-book, seldom or never illustrating them by reference to the great world about them, and rarely stimulating their pupils to their work by reminding them that their training in school is only preliminary to the training of the broader school of maturer life; that the power of thought and the comprehension of mental and material things are the essence of education. Many such teachers are not greatly to blame for this narrow view and practice of their profession, for they, in their school-days, were not taught the lesson under consideration. Here comes into prominence one of the peculiar functions of the Normal School, which is to instruct the embryo teacher how to use the knowledge acquired from the text-book, and how to re-enforce it from each day's observations and experiences of the world. Persons without such power are deficient in one of the fundamental elements of successful teaching, and no amount of mere book knowledge can compensate for that deficiency. This truth is now better understood than ever before, and we were pleased to see that it has taken firm root in the Whitewater Normal School, but even there it is capable of indefinite expansion. The world has seldom lacked teachers of profound learning, judged from the standard of their times, but it has always lacked a sufficiency of those who knew how to make their learning most available for the benefit of their pupils. "Blockheads" and "numbsculls" may be the pro-

Reports of Visiting Committees — Whitewater.

duct of ill-advised methods of instruction as well as the forces of mother nature, and it is an auspicious omen for the cause of popular education that this truth is coming to such general recognition among those who hold the responsible position of instructors in our higher institutions of learning.

The pupils of the Whitewater School are for the greater part from the villages and farms of the counties in its immediate vicinity; hence many of them have had only such preparation for entrance upon an advanced course of study as could be obtained in the district schools, which, unfortunately, are often poorly equipped for their work. The result is, as we learned both from members of the faculty and from our own observation, that the pupils constantly labor under the disadvantage of inadequate early training. Having had limited opportunities for general reading and for close and well-directed study, they find the advanced branches of learning to which they come difficult of comprehension. Words and forms of expression are wholly new to them—they find themselves traveling a wholly unknown road in an imperfect light. Nothing but intense and unrelenting study can wholly overcome this deficiency in early training; but this is denied to many, who, dependent upon their own exertions for their maintenance, are compelled to intersperse their school course with periods of manual labor at home or terms of teaching in the district school. Under such circumstances thorough scholarship is exceptional among the graduates—not, it must be remembered, through lack of exertion on their part or faithfulness and ability on the part of the faculty. In spite of these disadvantages many of the graduates and not a few of those who have taken only the "Elementary Course" have done and are doing excellent work as teachers; and it is largely owing to their labors that progress has been shown in district and primary education. Notwithstanding this, and in view of the fact that deficiency of preparation, of which we have spoken, will almost necessarily continue for many years, among those from whom this and similar institutions will

Reports of Visiting Committees — Whitewater.

draw their students, it is a question worthy of your consideration, and that of your associates upon the Board of Normal School Regents, whether Normal School education, and consequently that of the common schools, would not be greatly promoted by revising the courses of study in the existing Normal Schools. The "Elementary Course" contains rather more than can be thoroughly mastered in two years without more preparation than can be had in the primary schools of the country and village; besides, the fact of its existence may be a temptation to the student to be satisfied with the certificate of its completion; whereas, it does not contain enough fully to equip a teacher for his work, even though thoroughly mastered. If it were abolished, and a new course established in its stead, consisting of the studies embraced in it, together with the studies of the junior year, excepting Latin, a most satisfactory advance in the standard of scholarship among the teachers of the public schools might reasonably be expected, provided the great majority of those who would otherwise take the "Elementary Course" could be induced to take the new course. This would make a three years' course, including all the more practical studies of the full or "Advanced Course" of four years, yet the studies could be so distributed as to be more easily mastered than either of the courses now existing in the time allotted to them; and this too if it should include, as it ought to, the continuation of the drawing and practice-teaching now assigned to the senior year.

The satisfactory completion of such a course should secure a diploma such as that now awarded to the graduates of the "Advanced Course," entitling the holder to teach in any of the public schools of the State. As an evidence that this unsatisfactory "Elementary Course" is in the way of the progress of higher education, we observe from the last catalogue of the Whitewater Normal School that the number of graduates in the "Advanced Course" has not shown any steady increase as it ought — the first class, that of 1870, numbering six, while that of 1880 numbered

Reports of Visiting Committees—Whitewater.

but five. Only one class, that of 1874, numbered as high as fifteen, while the average number for the ten years was nine. On the other hand, the number of those who have been satisfied with completing the "Elementary Course" increased from eight, in 1875, to thirty-four, in 1880, the average number being a fraction over twenty-one. In other words, thirty more students graduated from the "Elementary Course," in six classes, than graduated from the "Advanced Course" in eleven classes. The "Elementary Course," while good as far as it goes, is not by any means fulfilling the province of Normal School education; yet, as we have shown, it is apparently satisfying by far the larger number of Normal School pupils.

With one three years' course, such as we have suggested, vastly more would be accomplished in the line of real normal training, because such a course would be completed by a much larger number than now complete the full course of four years, while practically it would be, in the great majority of cases, as effective as that course. This arrangement would detract nothing from the dignity of the schools, but rather add thereto, enabling them to turn out a larger number of graduates with a well-grounded education, than under the present system.

For the comparatively few students who ought and would desire to take a more extended course, arrangements could be made in one school, centrally located, for a two years' additional course, which should embrace the studies now assigned to the senior year, and such others additional as mature deliberation might suggest, including a modern language or two. To this course the diploma of graduation from the three years' course should secure admission. This plan, if properly carried out, would result in economy of expenditure as well as more thorough scholarship in the normal graduates; and thorough scholarship is that which alone will commend our public school system to the people, and insure its accomplishment of the important work for which it was ordained.

Reports of Visiting Committees — Oshkosh.

In the consideration of this suggested revision of the courses of study, it is primarily important to inquire whether it would not deter a considerable number of those who now take the "Elementary Course" from taking any normal course at all. If it would do so, then the propriety of a change might be doubted, for even an imperfect course of normal training is better than none for those who are to exercise the functions of the teacher. But whatever the determination of this question, there can be no doubt that the "Elementary Course" should be made entirely subordinate to the "Advanced Course," and pupils should be made to feel that the former does not furnish the equipment which they ought to have for the successful performance of the teacher's duties. Should the "Elementary Course" be allowed to remain, it might be well to consider whether it would not be wise to refuse the certificate now granted to those who complete it, as a means of stimulating students to the taking of a course that will give them a diploma which shall be an evidence of scholarship, and recognized throughout the State as an undisputed evidence of qualification for the work of teaching.

These suggestions are made, not to promote any particular theory of education, but in the hope of promoting the grand object in view of those who provided for our munificent Normal School Fund.

LEWIS A. PROCTOR,
C. A. KENASTON,
GEO. BECK,

Committee.

TO THE OSHKOSH NORMAL SCHOOL

HON. W. C. WHITFORD, *State Superintendent* :

The committee appointed to visit the State Normal School at Oshkosh has performed its duty, and begs leave to submit the following report : The members of the committee visited the school individually during the first part of the year. In June they made

Reports of Visiting Committees — Oshkosh.

a visit in a body and spent several days in examining the workings of the school.

The condition of the building and grounds has been reported on by so many committees previously that any mention of it in this report may be omitted.

So far as we are able to judge, the instruction given is for the most part thorough. There is an evident desire on the part of the teachers to induce pupils to do their own thinking, and, while acquiring the mastery of the subject-matter of the text, to extend their investigations further than the limits of the book. Most of the instructors keep definitely in view the future wants of the pupils as teachers in our schools, and skillfully adapt their instruction to supply these wants.

The work of one teacher raised the question whether or not concert recitations and the constant asking of what are known to the lawyers as "leading questions," is the best way of teaching, or is the kind of work needed in the Normal Schools.

The frequent interruption of a pupil while he is reciting, noticed in one or two classes, apparently had a tendency to repress freedom of statement and to destroy self-reliance. This was particularly noticeable in the case of pupils naturally diffident.

The freedom of intercourse between teachers and pupils, which was constantly apparent, showed that the best of feeling exists, and that the personal influence of the faculty is not failing to do its part in the training here given.

The "Reference Library" contains several works of great value, calculated to aid students in their researches. Its size does not nearly equal the demands of such an institution as is found here. We are informed that the management of the "Text-book Library" yields an annual profit to the school. Could this sum be used in the purchase of books for the "Reference Library," the benefits to the school would, without doubt, be greater than any other employment of it is likely to yield.

The moral influence at work in the school is evidently health-

Reports of Visiting Committees — Oshkosh.

ful, and must be of great benefit to all who come within its reach. None of the exercises of the school are of such a character as to be justly open to censure from either Jew or Gentile.

The discipline seems to be perfect. There was no perceptible worry on the part of teachers or pupils. Indeed, that state of perfection seems to be reached where the exercise of authority is uncalled for.

Some of the teachers appear still to be of the opinion that pupils' attainments can be put down, from day to day, on recitation cards in tenths or hundredths. We express the hope that the day will soon come when the practice will be no longer a daily one, but one of the legends of the profession.

The work of the Kindergarten was simply admirable. The work done by Miss Talmage and her forty little ones, demonstrates that this institution is a power in the school. There is something besides play done here. How any one can study this school for half a day and not be convinced that Kindergarten methods are invaluable, is past our comprehension. Whether the observation of this work for the limited time at the disposal of Normal students will enable them to adapt its methods to the wants of the district schools, is a question that can be answered only in the future. If the students learn nothing from it, excepting how they may devise methods to keep the little ones busy and interested, the establishment of this Kindergarten by the Board of Regents will be justified. One custom practiced seems worthy of censure. The lunch served each forenoon for the purpose of teaching table manners is composed almost entirely of cake and other highly seasoned food. This can not be otherwise than detrimental to health. If the practice must be continued, should not the lunch be composed of some plain food?

The school is full to repletion, as indeed are all of our Normal Schools. This one is too full. The evidences of overwork were plainly visible on the faces of many of the teachers. A demand for more room is, or soon will be made. While the character of

Reports of Visiting Committees — River Falls.

the work remains what it now is, this crowding is inevitable. The instruction is more largely academic than professional. The theory that it is necessary to do the former work in the Normal Schools rather than to make them training schools in the theory and art of teaching, was accepted by the State when the schools were established. But our educational facilities have been constantly increasing. The establishment of numerous high schools has made it possible to do most of the academic work now done by the Normal Schools nearer the homes of the pupils. The question is a pertinent one, — "Are not we, in Wisconsin, at that point where we may safely lop off much of this work and make our Normal Schools more strictly professional schools?" It is the opinion of this committee that the part of wisdom is to relieve the pressure on the Normal School forces by taking a stand in favor of the course just indicated rather than by increasing the number of schools or making additions to the faculties or buildings already in existence. Our Normal Schools should be places to which young men and women of liberal education, who have finished the college course, can go and prepare themselves for their duties as teachers by a course of professional training, just as they now prepare for the other professions of law and medicine.

A. A. MILLER,
BETSEY M. CLAPP,
L. B. SALE,

Committee.

TO THE RIVER FALLS NORMAL SCHOOL.

HON. W. C. WHITFORD, *State Superintendent*:

As required by statute, the committee of visitation for River Falls Normal School beg leave to report: Two of the members visited the institution twice each, while the third one made but one visit. These visits were made at such times as afforded excel-

Reports of Visiting Committees — River Falls.

lent opportunity to inspect the school and note its every-day workings.

The school has now been established six years. The changes wrought in the environs of River Falls during that period exceed the expectation of the most sanguine. The little village itself has become a thrifty business center; and the surrounding prairies and woodlands, productive fields. Notwithstanding all this, to the average mind the locality in its present good estate would hardly commend itself for a Normal School, yet the history of the school, both written and unwritten, testifies to the good judgment of the Regents in locating it at River Falls. The inconveniences in reaching the place, which are rapidly lessening, are more than offset by the pleasant surroundings, the beautiful location, and the moral tone of the town experienced when once there.

The relations existing between the citizens of River Falls and the Normal School authorities are of the pleasantest character. The former regard with pride the increasing influence of the school. The antagonism of interests between the town's people and the students, so common in places containing prominent educational institutions, is entirely wanting here, while both faculty and students constitute an important factor in the society of the place.

While the influence of the Normal on the rural schools is evidenced in the latter's marked improvement, the healthy reaction upon the school itself is also quite apparent. By its good deeds wrought for the district school, the Normal has, to a good degree, permeated the surrounding communities. Those teachers who have received normal training do more satisfactory service in the district school than those who have not improved opportunities for special preparation, and hence the anxiety at first felt by the faculty of River Falls Normal School as to what reputation it would acquire through its early representatives, whose period of membership was measured by a hasty fitting for a winter or sum-

Reports of Visiting Committees—River Falls.

mer's term of teaching, has been transformed into professional pride. Each teacher going forth carries with him good ideas of school management and improved methods of instruction. Already the "bread cast upon the waters" is returning in the form of material less crude, better trained to think and to rely upon itself, thus rendering functions strictly normal, a possibility. In this respect, River Falls Normal School may be regarded as rapidly wheeling into line with those of the State whose establishment was in surroundings far more favorable to strictly normal work.

After a patient waiting, then, strong cords of sympathy have been established between this Normal School and the most distant outposts of its influence, whose constant vibrations tend to the gradual uplifting of the district school from the errors of former experience to the high plain of systematic training.

To any person visiting this school at all accustomed to the work of the school room, comes a ready assurance of its high tone. Ease, order, and quiet prevail. The earnestness of purpose depicted in each countenance declares that its possessor is there for business; he has no time for irregularities which steal time and distract the attention.

The quiet, dignified, yet sympathetic bearing of each member of the faculty toward the students invites inquiry, while his words encourage personal investigation and self-reliance on the part of his pupils. Equal with the pleasure and interest of the teachers in imparting instruction seems the pleasure and interest of the students in obtaining it.

As to the methods employed and the general character of the class room work, little need be said.

In this particular the school as a whole ranks high. There is exhibited at the school, however, as at other higher institutions, the results of previous wrong training. Pupils are asked questions which of themselves do not suggest the answers, and they are at once enveloped in an intellectual fog. They seem to be

Reports of Visiting Committees — River Falls.

totally unable to think or reason. When sent to the board they cannot solve a problem which requires more than a mechanical application of the rule they have previously memorized. The cause of this cannot be laid at the door of the Normal School, for nine-tenths, perhaps, of the other pupils are not so intellectually stunted. It is unsafe to say the pupils are incapable of thinking or reasoning. The real cause lies in the teachings received in the primary or district schools. They were then told everything and required to discover nothing. To graduate these pupils with credit to themselves and the school involves the undoing of what has already been done. This exhibition of poor teaching in the preparatory schools suggests the need of more trained teachers; teachers who appreciate their work; who comprehend the difficult task on their hands. Their work is not properly done unless their pupils are taught to think.

In justice to all interests centering here, it is proper to state that your committee were of the opinion that the professional work was not receiving the attention to which its great importance entitles it. In fact, this feature seemed to be almost ignored. In seeking to account for the existence of conditions so completely inharmonious with the school as a whole, your committee naturally enough charged it to the overworking of the principal. In no system of educational work can a close supervision be more effective than in a Normal School. Not only is it necessary for a healthy, harmonious working of its own departments, but that the methods emanating therefrom may be of the class most approved, full of the richest experience, and so commend themselves to popular favor, the daily, critical survey by the principal teacher is rendered absolutely indispensable. This cannot be, if a full day's work in the class room is required of him. One, or at most two class exercises daily are all that can be conducted by the President of a Normal School, if each department is to receive that attention productive of the best results.

Your committee earnestly suggest that the President of River

Reports of Visiting Committees—River Falls.

Falls Normal be relieved of his great burden of class room work, so that each department, and especially the professional work, may receive the full benefit of his ripe experience and acknowledged professional skill.

Notwithstanding the educational savants have for some time had under discussion the feasibility of introducing the study of the natural sciences into our primary schools, the matter still lingers in the experimental balance. The majority of teachers hesitate about giving the project their sanction, fearing the overcrowding of the curriculum, and a consequent neglect of the studies regarded as essentials. Much less does the plan receive a ready endorsement from the people. In view of this, those institutions that become the guide of all others as to what to teach, as well as to their models in the methods of imparting instruction, should consider well the order of their going. Your committee question the propriety of any Normal School giving attention to these studies in its academic course to an extent other than is suggested by the other branches, and in keeping with the general intelligence of its pupils. The reading lesson usually furnishes the opportunity for all that is necessary in this direction at the period mentioned. When the attention given amounts to an approach, at least, to a thoroughly elementary training with apparatus and experiments, the pupils naturally become impressed with the idea that the sciences are by common consent a part of the common school curriculum; and, going forth as teachers, proceed at once to give them a place in their daily programme. The average school board regards this teaching as entirely out of place in a school where nine of every ten pupils seek only to become fair readers, writers, and calculators. "Such presumption on the part of the teacher" not infrequently brings him in collision with school authorities, thus essentially lessening his influence and usefulness.

The Normal School is now a potent element in our school system, and a slight indiscretion on its part may become the forerunner of much evil to our district schools. Doubtless, the Normal

Reports of Visiting Committees—River Falls.

School has a great work to perform in the formation of public opinion looking to progress, but radicalism may impede rather than facilitate progressive measures.

In this era of statistics, the records of a school form an important part in its perfect organization. There is little danger of these being too full or comprehensive. In all, and particularly in the Normal Schools, the records should be, in a certain sense, exhaustive in character, giving in a condensed form that class of facts which indicate the character, scholastic and otherwise, of all that have been received as pupils. As regards the alumni this record should, through correspondence, be kept complete to date and in such form as will afford the inquirer opportunity to trace the career of any graduate of the school. In connection therewith, the final examination papers of each graduate should be on file for a limited period, at least. Some such system could not fail to prove very satisfactory to the school authorities while it would constitute a reliable source of information for any visiting the school in search of teachers, from which to judge more accurately of the personal character of the candidate and his ability to manage and teach. As wanting in this matter of systematic, historic record of pupils and graduates, River Falls is undoubtedly no exception. Your committee suggest improvement in this particular.

In conclusion, we have no hesitancy in saying the school merits the confidence of the State at large, and to young persons seeking a place for a thorough development of the mental powers, so necessary to a high grade of citizenship, or a special training for the teacher's work, we heartily recommend River Falls Normal. Let us hope that this school will continue its upward career, and become more and more an eloquent tribute to the clear foresight and sound judgment of the Wisconsin Board of Normal Regents.

R. W. BURTON,
ROBT. GRAHAM,
J. C. RATHBUN,

Committee.

Examination of Teachers for State Certificates.

EXAMINATION
OF
TEACHERS FOR STATE CERTIFICATES,

AUGUST 9-12, 1881.

UNITED STATES HISTORY.

1. Show the overlapping nature of several of the English grants or patents of land in America.
2. Tabulate the incidents and results of the French and Indian war, that served to cause and promote the Revolution.
3. Sketch the military movements of the Revolution concerning or near Philadelphia.
4. Sketch the career of the United States Bank, and the political movements incident to it.
5. State cause, incidents, and results of J. Q. Adams's controversy with the State of Georgia.
6. Relate four instances of state rightsism by anti-slavery States.
7. Tabulate the chief doings of the "Army of the Potomac" under each of its commanders.
8. Write of President Johnson's impeachment.
9. State public services of Wm. H. Seward or of Samuel J. Tilden.
10. To what distinct political jurisdictions has Wisconsin been subject from first exploration to the present, and how was each abrogated, and when?

Examination of Teachers for State Certificates.

ARITHMETIC.

1. Having the quotient, remainder, and dividend, how is the divisor found?
2. What is the L. C. M. of $2\frac{1}{4}$, $5\frac{5}{8}$, $3\frac{1}{2}$? Explain method of finding.
3. Show the application of the principle, that if the numerator and denominator of a fraction be increased or decreased in the same ratio, the value of the fraction is not changed.
4. Write your analysis of the reduction of twenty-nine thirds to fourths.
5. Write your explanation of division of a fraction by a fraction.
6. When it is noon, January 1, at Washington (77° west), what time is it at Pekin ($116^{\circ} 27'$ east)?
7. If $\frac{2}{3}$ of a bushel of wheat equal $\frac{5}{4}$ of a bushel of corn, and $\frac{3}{4}$ of a bushel of corn equal $\frac{3}{5}$ of a bushel of rye, and $\frac{5}{8}$ of a bushel of rye equal $\frac{1}{3}$ of a bushel of barley, when barley is 80 cents per bushel, how many bushels of wheat can be bought for \$120?
8. If $\frac{2}{3}$ of A's money, plus \$20, equal $\frac{3}{4}$ of B's, plus \$40, and A has \$120 more than B, how many dollars has each?
9. An agent sells a consignment of goods, and invests the proceeds, after deducting the commissions for selling and purchasing. If his rate of commission for selling is 5 per cent., and his rate for investing 5 per cent., and the whole amount of his commission is \$280, what amount was invested?
10. If 10 per cent. of a shipment of goods are destroyed, at what per cent. above cost must the remainder be sold, so that a profit of 20 per cent. on the cost of the whole may be realized?

Examination of Teachers for State Certificates.

GEOGRAPHY.

1. If the earth were to cease rotating, what changes would result, and why?
2. State the chief politico-geographical changes of the last four years, and cause of each.
3. Write of the main east-and-west mountain system of the Eastern continent.
4. By trade and route describe the *round* trip of a sailing vessel between New York and San Francisco.
5. Account for intermittent springs, hot and cold.
6. Name and locate an arid desert area in each continent and account for its condition.
7. By latitude, show the distribution of unlike vegetation in the two continents.
8. State opposing theories accounting for volcanoes. Trace volcanic ranges, and name chief vent in each.
9. Name, and estimate the population of the metropolis of each grand division, and account for its being such.
10. On scale of one inch per five hundred miles, draw outline map of United States, on which indicate the chief mineral deposits.

CONSTITUTIONS.

1. Which features of our Constitution might be stricken out without destroying its republican character, and why?
2. What of the original United States Constitution has been cancelled by amendments, and when?
3. Who are eligible to be president pro tem. of the United States Senate, and when?
4. Collate the items of the original United States Constitution relating directly or indirectly to, or affected by slavery.
5. Collate the items of the United States Constitution concerning taxation, finance, and kindred topics.

Examination of Teachers for State Certificates.

6. Quote the constitutional boundary of Wisconsin, and state what other was refused by Congress.
7. What writs may the higher courts of Wisconsin issue to the lower, and what does each mean?
8. By the United States Constitution, and by that of the State, what may our Legislature not do, and why is each forbidden?
9. On what proposed amendments did our last Legislature act, and how?
10. Define constitution, jurisdiction, treason, suffrage, republic, democracy, eminent domain, and escheat.

PHYSIOLOGY.

1. Name the bones of the upper extremities.
2. Discuss the hygienic rules relating to quantity, quality, and manner of taking food.
3. Describe the alimentary canal.
4. Give the anatomy and functions of the lymphatics.
5. Describe the heart.
6. Trace the circulation of the blood, from right auricle through the liver, back to the right auricle again.
7. Describe the process of respiration, and state its objects.
8. Give the functions of the spinal cord.
9. Describe the eye.
10. Describe the skin and give its functions.

ALGEBRA.

1. Of what value in mathematics is the literal notation.
2. Write your explanation of change of signs in subtraction, in multiplication.
3. Resolve $a^2 - b^2$ into two binominal factors and write the general formula which applies.

Examination of Teachers for State Certificates.

4. Demonstrate that $z^{-x} = \frac{1}{z^x}$.
5. Express the equivalent of the following without the use of fractional or negative exponents: $-2 a^{\frac{3}{4}} x^{\frac{n}{m}} y^{-\frac{m}{n}}$.
6. Extract the cube root of $27x^{\frac{9}{2}} - 54x^{\frac{7}{2}} + 36x^{\frac{5}{2}} - 8x^{\frac{3}{2}} + 27x - 36 + 12x^{-1} + 9x^{-\frac{5}{2}} - 6x^{-\frac{7}{2}} + x^{-6}$.
7. Write the first four terms of the expansion of $(2x^{\frac{1}{2}} - y^{\frac{2}{3}})^n$.
8. Write axioms sufficient to cover all possible transformations of equations.
9. The weight of a mass of silver and copper is 4,800 oz. When the mass is immersed in water it displaces 492 oz. of water. If silver is $10\frac{1}{2}$ times, and copper 9 times its weight of water, how many oz. of each metal in the mass.
10. There is a number consisting of two digits, which divided by the sum of its digits, gives a quotient greater by two than the left hand digit. But if the digits be inverted (change places), the number then expressed divided by a number greater by one than the sum of its digits, gives a quotient greater by two than the preceding quotient. Required the number.

READING.

1. State the likeness and the unlikeness of Reading and Oratory.
2. *Describe* exercises promotive of chest action and tone in reading.
3. State faulty attitudes in which pupils while reading indulge, and remedies therefor.
4. Mental comprehension of an article has what relation to its oral expression, and why?

Examination of Teachers for State Certificates.

5. Tabulate and explain to what the element of *time*, or duration, applies in oral reading.
 6. Name, define, and illustrate the varieties of *Series*, and state how each should be read.
 7. Tabulate what is included in the proper preparation of an average Fourth Reader lesson. Oral reading of selected extracts.
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GRAMMAR AND ANALYSIS.

1. Of what specific importance is a knowledge of English Grammar in learning our own language?
2. Explain the signification of "Parts of Speech."
3. What various offices does the noun perform in the construction of sentences?
4. Write your classification of pronouns, and give an example of each class.
5. What parts of speech are used as connectives? Illustrate.
6. Write the principal parts of *lost, rang, gone, forgive, made, wrote.*
7. Parse the words italicised in the following:
*Green be the graves where the martyrs are lying,
Shroudless and tombless they sink to their rest;
While o'er their ashes the starry fold flying,
Wrapt the proud eagle, aroused from his nest.*
8. Correct the following and give reasons:
(a) Let each scholar who thinks so raise their hands.
(b) Where was you the morning, when I called?
(c) Will you let him and I sit together?
9. Outline your system of sentential analysis, explaining the terms you employ.
10. Analyze:

The theory of the Mohammedan government rests upon the maintenance of a clear separation from unbelievers. To propose to a Mussulman of any piety that the "Commander of the Faith-

Examination of Teachers for State Certificates.

ful" should obliterate the distinction between Mohammedan and Christian, would be proposing to obliterate the distinction between virtue and vice. The notion would not only seem to be wrong, but it would seem to involve a contradiction of terms.

PENMANSHIP.

1. Define principle, turn, space, loop.
2. In what respects are teachers to blame for most pupils' scrawly writing, and why?
3. Before writing from a copy, what should pupils do respecting such copy, and why?
4. Which eight letters would you first teach *systematically*, and in what order, and why?
5. Construct and state proportions of each variety of oval, and make all letters based on each.
6. Specify the desirable properties that pens, ink, and paper for school use should possess, and state what brands or make of each have them.
7. By attaching numbers to principles, analyze the word *Spacing*, written large, one line per space.
8. As specimen copy-hand, write this line.

GEOMETRY.

1. Draw and name the various plane geometric figures.
2. What are the bases of classifications of triangles.
3. Granting nothing but axioms and definitions, demonstrate that a line parallel to one side of a triangle cuts the other two sides proportionally.
4. Each of two parallel chords is 9 ft., and the perpendicular distance between them is 6 ft.; what is the radius?

Examination of Teachers for State Certificates.

5. The parallel sides of a right-angled trapezoid are 9 ft. and 15 ft., and the perpendicular distance between them is 5 ft. If the convergent sides meet, what is the area of the triangle thus formed?
6. Demonstrate that the sum of the angles of a triangle equals two right angles.
7. State corollaries depending upon demonstration in No. 6.
8. State the measure of an angle at the center, at the circumference.
9. State the numerical ratio of diameter and circumference, and outline the method of finding it.
10. What expresses the ratio of similar plane figures?

NATURAL PHILOSOPHY.

1. State the theoretical composition of matter, and some corollaries thereon.
2. Define inertia, induction, latent, osmose.
3. Distinguish refraction from reflection, and mechanical from chemical electricity.
4. Explain and illustrate conservation or correlation of force.
5. Write of polarization of light, and its uses.
6. State how the thermometer may be used to measure elevation.
7. Required the cleavage force of a wedge whose length is 8 inches, and head 2 inches square, on which a weight of 20 pounds falls 8 feet.
8. A dam of 15 feet head has a hole 6 feet from its foot. At what distance from the foot will the leakage strike?
9. Diagram a turbine water-wheel, and state the principles of its action, and economy.
10. Write of the telephone.

Examination of Teachers for State Certificates.

ORTHOGRAPHY.

1. What treatments of words does a good Spelling-Book include, and what of Orthography do they usually exclude, and why?
2. Classify a number of prefixes by the part of speech of each, and state and illustrate the part of speech to which each may attach, and give part of speech so formed.
3. State rules for using and for omitting the hyphen in writing compound words, and illustrate each.
4. Write ten abbreviations requiring capitalizing and ten not requiring it, and explain this difference in treatment.
5. What terms or words used in Orthography have also an application in Orthoepey, and why? Illustrate.
6. Write five words from each of four other languages, which our language has adopted, and define each.
7. As specimen of business orthography and skill, write a commercial bill of six items, and a non-negotiable, joint, and several promissory note for same.

Spell thirty words; write three rules of spelling involved in the list, and quote the words coming under each rule; and *word-analyze* half of the derivative words.

ORTHOEPEY.

1. What of Orthoepey is usually confused with Orthography, and to what is this due?
2. Name and define the several subdivisions of, as related to Orthoepey.
3. *Describe* exercises promotive of facility in articulation, and state benefits of each, and why?
4. Has *h* one unvarying elementary sound, and why?
5. Which organ of speech aids in forming more sounds than any other organ, and how? State sounds made by it, in classes if necessary.

Examination of Teachers for State Certificates.

6. Define enunciation, resonance, surd, quantity.
7. Distinguish vowel from vocal; tone from noise; diphthong from digraph; and pronunciation from articulation.

Mark and state rules of pronunciation for each letter numbered in this sentence.

ENGLISH LITERATURE.

1. Write a brief history of the formation of the English Language.
2. Why are the writings of Chaucer prominent in English Literature?
3. Classify the subject, and give reasons for your classification.
4. What was King Alfred's influence upon Literature?
5. Write an account of the drama up to the time of Shakespeare.
6. Compare Shakespeare and Chaucer.
7. Name three eminent writers succeeding Chaucer, and group around them contemporaries of eminence.
8. Compare the early and later works of fiction.
9. Characterize the writings of Byron and of Goldsmith.
10. Discuss some one work from either of the following authors: Swift, S. Johnson, Scott, Dickens, or Macaulay.

MENTAL PHILOSOPHY.

1. Define sensation, perception, consciousness. What is an acquired perception? Illustrate.
2. Define abstraction, generalization. Tell uses of latter. What is the object of thought, when a general term is used?
3. Is our knowledge of causation intuitive, or is it based on observation and experience? Give reasons for your opinion.
4. Give Locke's theory of perception. Give Berkeley's. How did the latter grow from the former? What would you state to be the true theory?

Examination of Teachers for State Certificates.

5. Define reasoning. Illustrate inductive and deductive reasoning.
 6. Define imagination. What is a formative and what a creative imagination? What can you say of its value in science? in architecture? in poetry? in war?
-

GENERAL HISTORY.

1. Write about the *Lost Tribes* of the Children of Israel.
 2. Name and locate the chief States of ancient Greece, and state one prominent man and event in each.
 3. Describe the political constitution and parties of republican Rome.
 4. State causes, incidents, and results of the two chief naval conflicts B. C.
 5. State causes, contents, and results of Magna Charta of England.
 6. State chief causes, actors, and incidents of the rise of Protestantism.
 7. Describe the chief event, military, political, and religious, of the reign of Louis XIV, of France.
 8. Trace progress of Mohammedanism in Europe.
 9. Describe four chief internal complications of Great Britain within last fifty years.
 10. State chief events in which Bismark has been a leader, stating how.
-

GEOLOGY.

1. Name six of the chief Archean rocks. Where are they on the surface in North America? What ore was very common among them?
2. Define the terms fragmental, metamorphic, calcareous, and igneous, as applied to rocks.

Examination of Teachers for State Certificates.

3. Define dip, outcrop, strike, synclinal, and anticlinal
4. What were the chief forms of animal and vegetable life in the Silurian, Devonian, and Carboniferous ages?
5. In what age did vertebrates first appear? reptiles? birds? mammals? man?
6. What was distinctively the age of fishes? of reptiles? of mammals?
7. Describe the origin of the coal measures.
8. What produced the "Drift." Explain in full how it was done, and tell two places where similar action is now going on.

POLITICAL ECONOMY.

1. Define wealth, value, capital.
2. What circumstances affect the rate of wages?
3. What is the usual effect of *strikes* on labor? on capital?
4. Name and define the kinds of voluntary and of involuntary consumption.
5. What reasons can you give for and against ad valorem duties, as compared with specific duties?
6. Has a State legislature a right to appropriate money for a geological survey? Why?
7. What can you say of the value of mental labor in production?

BOTANY.

1. What are phænogamous plants? Cryptogamous? Name the two great classes of each.
2. Describe the parts in a transverse section of an exogenous stem, and name a plant that is an exogen. The same of an endrogen.
3. Draw a figure representing a pinnate, cordate, ovate, serrate, and acuminate leaf.

Examination of Teachers for State Certificates.

4. Define phyllotaxy, and tell the different modes.
5. Tell differences, in mode of growth and of reproduction, between an elm and a fern.
6. Define hypogynous, epigynous, and gynandrous, as applied to stamens; and polypetalous and monopetalous (or gamopetalous), as applied to corolla.
7. Describe stamen and pistil, when complete, and tell how the ovule is fertilized.
8. Describe the leaf and flower of the specimen given you, by checking opposite the words that describe it on the blank.

ZOOLOGY.

1. State the essential differences between the food, purpose, and results of plant life, and the life of animals.
2. Name the six subkingdoms into which the animal kingdom is divided by the latest zoologists. Which consist of vertebrates?
3. Describe the chief distinctive characteristic of mammals; of birds.
4. Describe the respiratory apparatus of insects; of fishes; of amphibia.
5. Which subkingdoms (excepting the highest class of one), have no apparent nervous system?
6. Give the principal physical differences between man and the apes?
7. What would you say of intellect in the lower animals? Do they always act from instinct? Has mankind any instincts? Illustrate each.

THEORY OF TEACHING.

1. Outline the work for a pupil during the first year of his school experience.

Examination of Teachers for State Certificates.

2. What tests would you apply to determine the successfulness of a school?
3. Outline what you consider the most important things to attend to in the organization of a school.
4. Whom do you consider responsible for the prompt and regular attendance of pupils? Give reasons.
5. Who should attend to classification and seating? Why?
6. What is your opinion in regard to the practicability of a course of study for the common district schools?
7. What attention have you given to the "course of study" issued by the State Superintendent, and what is your opinion in regard to it?
8. What is your opinion in regard to the practice of giving prizes?
9. Distinguish between methods of instruction adapted to pupils from five to eight years of age, and methods adapted to pupils from twelve to fifteen years of age.
10. What educational works have you read during the past year?

Statistical Tables.

STATISTICAL TABLES.

The following apportionment was made June last, on the returns for the school year ending August 31, 1880. The rate was forty-one and a half cents per child of school age.

The amount received by the independent cities is included.

TABLE No. I.

APPORTIONMENT OF SCHOOL FUND INCOME IN 1881.

COUNTIES.	Number of children.	Apportionment.
Adams	2,514	\$1,043 31
Ashland	463	192 14
Barron	2,018	837 47
Bayfield	260	107 90
Brown	13,174	5,467 20
Buffalo	6,314	2,620 31
Burnett	745	309 17
Calumet	6,531	2,710 36
Chippewa	4,952	2,055 08
Clark	3,472	1,440 88
Columbia	10,735	4,455 02
Crawford	6,228	2,584 62
Dane	19,233	7,981 69
Dodge	18,156	7,534 74
Door	4,062	1,685 73
Douglas	262	108 73
Dunn	3,900	2,448 50
Eau Claire	5,973	2,477 80
Fond du Lac	18,551	7,698 67
Grant	14,847	6,161 51
Green	8,275	3,434 12
Green Lake	5,140	2,133 10
Iowa	9,304	3,861 16
Jackson	4,741	1,967 32
Jefferson	12,631	5,241 87
Juneau	5,917	2,455 56
Kenosha	5,061	2,100 32

*Statistical Tables.*TABLE NO. I.—APPORTIONMENT OF SCHOOL FUND INCOME IN
1881 — Continued.

COUNTIES.	Number of children.	Apportion- ment.
Kewaunee	6,812	\$2,826 98
La Crosse	8,671	3,598 46
La Fayette	8,152	3,383 08
Lincoln	527	218 70
Manitowoc	15,967	6,626 30
Marathon	5,505	2,284 57
Marinette	2,534	1,051 61
Marquette	3,580	1,485 70
Milwaukee	46,016	19,096 64
Monroe	8,184	3,396 36
Oconto	3,213	1,333 40
Outagamie	11,057	4,538 66
Ozaukee	6,661	2,763 88
Pepin	2,337	969 85
Pierce	6,239	2,630 68
Polk	3,465	1,437 98
Portage	6,324	2,624 46
Price	159	65 98
Racine	11,372	4,719 38
Richland	7,023	2,914 54
Rock	13,192	5,474 68
St. Croix	6,556	2,720 74
Sauk	10,324	4,284 46
Shawano	3,656	1,517 24
Sheboygan	13,825	5,737 38
Taylor	626	259 79
Trempealeau	6,443	2,673 85
Vernon	9,106	3,778 99
Walworth	8,587	3,563 61
Washington	9,285	3,853 28
Waukesha	10,071	4,179 46
Waupaca	7,763	3,221 65
Waushara	5,008	2,078 32
Winnebago	15,169	6,295 14
Wood	2,825	1,172 38
Totals	481,793	\$199,941 66

*Districts, Children, and School Attendance.*TABLE No. II.
DISTRICTS, CHILDREN, AND SCHOOL ATTENDANCE.

COUNTIES.	Number of regular school-districts in the county.	Number of such districts which have reported.	Number of parts of districts in the county.	Number of parts which have reported.	Number of joint districts with school-houses or sites in the county.	Number of male children over four and under twenty years of age.	Number of female children over four and under twenty years of age.	Whole number of children over four and under twenty years of age in the county.	Number over four and under twenty years in those districts which maintained school five or more months.	Number of days a school was taught by a qualified teacher.	Number over four and under twenty years, who have attended school.	Number under four years of age, who have attended school.	Number over twenty years of age, who have attended school.	Total number of different pupils who have attended school during the year.
Adams	47	47	38	38	19	1,318	1,144	2,462	2,442	10,798	1,947	3	8	1,958
Ashland	6	6	.....	.....	.....	262	274	536	536	1,053	257	.....	6	1,263
Barron	57	57	17	17	10	1,350	1,238	2,588	2,381	7,827	1,739	1	12	1,752
Bayfield	1	1	.....	.....	.....	128	145	273	273	200	66	.....	.....	66
Brown	74	74	17	17	3	5,085	4,782	9,867	9,671	13,475	5,023	9	3	5,035
Buffalo	65	65	34	34	16	3,135	3,015	6,150	6,150	11,590	3,971	3	32	3,996
Burnett	14	14	.....	.....	.....	419	383	802	802	1,471	561	1	4	566
Calumet	53	53	26	26	13	3,288	3,164	6,452	6,452	11,424	3,512	.....	4	3,516
Chippewa	91	91	7	4	4	2,570	2,456	5,026	5,006	12,939	3,747	9	4	3,760
Clark	63	63	38	37	15	2,005	1,777	3,782	3,777	11,962	2,417	5	7	2,429
Columbia	110	109	44	44	36	4,220	3,947	8,167	8,139	26,082	6,346	6	23	6,375
Crawford	51	51	39	37	39	2,572	2,366	4,932	4,848	14,055	3,489	9	19	3,517
Dane, 1st district	85	85	101	101	41	4,058	3,704	7,762	7,762	24,333	5,265	5	30	5,300
Dane, 2d district	89	87	64	63	29	3,908	3,727	7,635	7,620	18,087	5,041	5	24	5,070
Dodge	136	136	110	110	57	7,716	7,396	15,112	15,112	33,450	9,055	10	31	9,086

Districts, Children, and School Attendance.

TABLE No. II.—DISTRICTS, CHILDREN, AND SCHOOL ATTENDANCE—Continued.

COUNTIES.	Number of regular school-districts in the county.	Number of such districts which have reported.	Number of parts of districts in the county.	Number of parts which have reported.	Number of joint districts with school-houses or sites in the county.	Number of male children over four and under twenty years of age.	Number of female children over four and under twenty years of age.	Whole number of children over four and under twenty years of age in the county.	Number over four and under twenty years in those districts which maintained school five or more months.	Number of days a school was taught by a qualified teacher.	Number over four and under twenty years, who have attended school.	Number under four years of age who have attended school.	Number over twenty years of age, who have attended school.	Total number of different pupils during the year.
Door	46	46	12	7	8	2,326	2,237	4,563	4,563	7,178	2,316	5	6	2,327
Douglas	2	2	85	12	14	180	154	334	334	300	164	...	...	164
Dunn	85	80	35	12	14	3,172	2,984	6,156	6,156	12,970	4,279	2	41	4,323
Eau Claire	63	61	13	11	4	3,447	3,259	6,706	6,706	9,491	4,578	1	17	4,596
Fond du Lac	124	124	53	53	44	5,986	5,678	11,664	11,664	31,654	7,238	3	21	7,262
Grant	157	157	106	106	53	7,552	7,211	14,763	14,763	31,152	10,635	7	55	10,747
Green	97	97	51	33	33	4,278	3,947	8,225	8,225	24,826	6,400	24	44	6,468
Green Lake	47	47	48	48	23	2,102	1,933	4,035	4,004	12,541	2,458	3	1	2,462
Iowa	102	102	45	39	23	4,082	3,921	8,003	7,942	19,774	6,112	10	13	6,135
Jackson	56	56	38	38	19	2,388	2,217	4,605	4,569	11,089	3,126	4	22	3,132
Jefferson	83	83	91	91	44	5,149	4,918	10,067	10,067	23,793	6,383	3	27	6,413
Juneau	71	71	22	22	20	2,917	2,889	5,806	5,806	13,549	4,005	2	9	4,016
Kenosha	40	39	46	46	21	1,491	1,415	2,906	2,906	9,682	2,048	...	9	2,037
Kewaunee	41	41	22	22	12	3,595	3,367	6,962	6,962	9,067	3,505	...	...	3,505
La Crosse	51	51	20	19	15	2,458	2,388	4,846	4,846	10,462	2,966	...	...	2,974
La Fayette	97	97	57	57	30	3,977	4,104	8,081	8,047	21,490	5,421	2	22	5,445
Langlade	21	21	...	...	...	218	162	380	320	2,012	234	...	...	234

Districts, Children, and School Attendance.

	7	7	5	5	1	293	334	627	607	594	441	3	3	444
Lincoln	85	85	47	47	23	8,049	7,993	16,042	16,042	19,362	7,720	5	11	7,736
Manitowoc	91	91	7	7	6	2,596	2,488	5,084	4,944	12,204	2,806	1	1	2,806
Marathon	13	13	.....	.....	.....	1,443	1,370	2,813	2,813	2,073	1,666	.....	.....	1,667
Marquette	44	44	41	41	15	1,869	1,754	3,623	3,623	9,571	2,334	3	8	2,345
Milwaukee, 1st district	28	28	12	12	6	2,287	2,239	4,546	4,546	6,264	2,059	2	.....	2,061
Milwaukee, 2d district	30	30	8	8	2	1,923	1,970	3,593	3,593	5,273	1,620	2	2	1,634
Monroe	87	87	75	75	36	4,267	4,018	8,285	8,285	21,155	5,655	4	28	5,687
Oconto	33	33	5	5	.....	1,165	1,088	2,248	2,230	5,805	1,447	4	.....	1,451
Ooutagamie	108	108	29	29	19	4,222	3,987	8,209	8,209	16,465	5,163	20	14	5,197
Ozaukee	51	51	12	12	8	3,271	3,353	6,624	6,624	9,349	3,542	10	4	3,556
Pepin	31	31	14	14	7	1,220	1,150	2,370	2,370	5,828	1,775	.....	31	1,806
Pierce	89	89	40	40	18	3,347	3,201	6,548	6,371	16,711	4,474	4	22	4,500
Polk	65	65	14	14	10	1,946	1,795	3,741	3,699	10,431	2,532	2	16	2,550
Portage	67	67	17	17	19	2,621	2,451	5,072	4,960	10,640	2,744	11	5	2,760
Price	10	10	.....	.....	.....	111	94	205	149	975	162	.....	.....	162
Racine	55	55	51	49	22	3,891	3,634	5,525	5,511	15,109	2,697	1	9	2,707
Richland	100	100	48	43	20	3,659	3,427	7,086	7,086	18,688	5,221	11	47	5,579
Rock, 1st district	59	58	57	53	23	2,192	2,060	4,252	4,252	16,571	3,267	7	35	3,309
Rock, 2d district	55	55	64	64	31	1,893	1,770	3,663	3,642	17,197	2,753	1	5	2,759
St. Croix	81	80	37	30	29	2,978	2,933	5,911	5,806	16,248	3,821	4	14	3,839
Sauk	121	121	85	85	41	5,226	4,964	10,190	10,190	21,064	7,254	3	48	7,305
Shawano	61	56	3	3	3	1,989	1,767	3,756	3,715	6,388	2,082	8	4	2,094
Sheboygan	93	93	56	56	19	5,373	5,268	10,641	10,479	21,189	6,785	6	14	6,805
Taylor	20	20	2	2	1	379	395	774	755	2,673	490	.....	.....	490
Trempealeau	66	66	40	40	22	3,279	3,039	6,318	6,272	13,164	4,139	4	35	4,178
Vernon	112	112	71	71	33	4,593	4,278	8,871	8,871	22,275	6,693	10	47	6,750
Walworth	93	93	77	77	35	4,295	4,216	8,511	8,427	25,281	6,104	5	18	6,132
Washington	64	64	40	40	40	4,699	4,497	9,196	9,196	18,875	4,810	2	4	4,816
Waukesha	72	72	122	122	46	5,073	4,919	9,992	9,992	18,382	6,650	11	17	6,678
Waupaca	90	90	45	45	19	4,103	3,819	7,922	7,896	15,368	5,270	2	13	5,285
Waushara	51	51	87	87	43	2,496	2,439	4,935	4,935	19,010	3,820	1	24	3,845
Winnebago	70	70	79	79	33	3,391	3,177	6,568	6,568	20,118	4,511	3	1	4,515
Wood	46	42	.....	.....	2	1,374	1,396	2,770	2,770	5,906	1,806	.....	4	1,810
Totals	4,273	4,246	2,479	2,426	1,248	197,304	191,145	388,449	386,624	896,613	248,467	281	958	249,706

Graded Schools, Teachers, Wages, Etc.

TABLE No. III.
GRADED SCHOOLS, TEACHERS, WAGES, NUMBER OF SCHOOLS, AND SUPERINTENDENTS' VISITS.

COUNTIES.	GRADED SCHOOLS.						TEACHERS.				WAGES.		No. of public schools in the county.		No. of schools visited by the county superintendent during the year.		No. of such visits made by county superintendent during year.	
	No. of schools with two departments.	No. of schools with three departments.	No. of schools with four or more departments.	No. of graded schools with a course of study.	No. of teachers required to teach the schools.	No. of male teachers employed during the year.	No. of female teachers employed during the year.	No. of different persons employed during the year.	Average wages of male teachers per month.	Average wages of female teachers per month.	No. of public schools in the county.	No. adopting grading system for county schools.	No. of schools visited by the county superintendent during the year.	No. of such visits made by county superintendent during year.				
Adams.....	2	1	1	1	68	16	98	114	\$27 00	\$18 05	66	...	66	139				
Ashland.....	1	1	1	1	6	3	3	6	60 00	47 50	6	...	6	7				
Barron.....	1	1	1	1	68	34	64	98	29 32	24 84	67	...	65	79				
Bayfield.....	1	1	1	1	2	1	1	2	100 00	30 00	1	...	1	3				
Brown.....	5	2	2	2	97	42	76	118	39 72	26 00	86	2	81	130				
Buffalo.....	2	2	2	2	88	58	67	125	37 44	26 26	81	6	84	137				
Burnett.....	1	1	1	1	16	4	12	18	26 94	28 32	14	...	14	28				
Calumet.....	3	1	1	1	75	31	74	105	36 65	26 28	68	6	68	105				
Chippewa.....	1	1	1	1	111	44	128	171	41 86	31 69	97	9	78	138				
Clark.....	2	2	2	2	88	23	131	154	38 64	27 29	81	...	53	77				
Columbia.....	6	1	2	6	164	71	188	266	39 56	20 90	146	10	144	270				
Crawford.....	1	1	1	1	92	49	93	129	27 19	17 65	93	15	75	131				
Dane, 1st dist.....	2	1	1	2	135	57	163	220	36 85	25 25	126	9	126	268				
Dane, 2d dist.....	3	1	2	3	133	60	148	205	34 07	23 63	120	4	110	182				
Dodge.....	1	1	1	1	219	106	209	311	35 26	21 29	190	45	176	198				

Graded Schools, Teachers, Wages, Etc.

[illegible]

Graded Schools, Teachers, Wages, Etc.

TABLE NO. III.—GRADED SCHOOLS, TEACHERS, WAGES, ETC.—Continued.

COUNTIES.	GRADED SCHOOLS.				TEACHERS.				WAGES.		No. of SCHOOLS.		Supts.' Visits.	
	No. of schools with two departments.	No. of schools with three departments.	No. of schools with four departments.	No. of graded schools with a course of study.	No. of teachers required to teach the schools.	No. of male teachers employed during the year.	No. of female teachers employed during the year.	No. of different persons employed during the year.	Average wages of male teachers per month.	Average wages of female teachers per month.	No. of public schools in the county.	No. adopting grading system for country schools.	No. of schools visited by the county superintendent during the year.	No. of such visits made by the county superintendent during year.
Rock, 2d dist.	5	1	1	7	98	25	140	105	\$33 40	\$22 98	86	1	84	160
St. Croix	3	1	1	3	107	59	114	174	37 50	30 13	110	10	105	174
Sauk	1	2	3	5	193	74	204	278	40 84	23 94	165	72	165	287
Shawano	1	1	1	1	58	20	51	73	25 42	21 04	67	...	48	68
Sheboygan	2	1	2	5	127	70	103	173	37 70	23 40	114	33	112	276
Taylor	1	1	1	1	21	2	24	26	29 50	26 81	21	...	11	14
Trempealeau	4	1	1	5	97	43	99	142	36 06	27 39	90	85	88	202
Vernon	3	1	1	4	150	88	159	247	29 03	19 94	166	37	124	138
Walworth	3	2	6	4	160	63	183	246	40 13	25 12	126	7	124	200
Washington	4	2	1	...	112	65	70	136	38 25	20 49	104	...	99	20
Waukesha	11	1	2	7	144	53	163	216	45 55	26 27	118	3	118	270
Waupaca	8	2	1	5	130	32	150	182	32 00	22 10	109	31	105	160
Waushara	5	...	...	...	99	33	138	177	27 56	18 49	99	4	99	193
Winnebago	2	5	...	5	113	35	134	169	31 38	22 18	103	6	99	203
Wood	1	1	1	1	47	17	46	67	36 55	25 40	48	...	41	50
Totals and averages.	184	50	85	165	6,253	2,583	6,504	9,205	av. \$35 39	av. \$25 21	5,645	651	5,468	8,478

*School-houses and School Appliances.*TABLE No. IV.
SCHOOL-HOUSES AND SCHOOL APPLIANCES.

COUNTIES.	No. of new ones built during year.	Whole number of school-houses in the county.	No. of pupils school-houses will accommodate.	No. of school rooms occupied for study or recitation.	No. of school-houses of stone or brick.	No. of school-houses yet required.	No. of school-houses in good condition.	No. of school-houses with out-houses in good condition.	No. school-houses properly ventilated.	No. of school-houses with separate out-houses for both sexes.	Cost of school-houses built this year.	No. of districts having black-boards	No. having reading charts.	No. having a map of Wisconsin.	No. having a map of the United States.	No. having a globe.	No. having a Webster's Unabridged Dictionary.
Adams.....	....	66	2,739	68	....	2	44	37	48	34	.....	66	2	11	14	2	60
Ashland.....	....	6	280	6	....	....	5	6	6	4	.....	6	1	5	2	2	6
Barron.....	6	66	2,658	67	1	1	64	56	10	49	\$12,472 00	64	25	30	32	35	59
Bayfield.....	....	1	90	2	....	....	1	1	1	1	.....	1	1	1	1	1	1
Brown.....	3	84	6,334	89	11	9	62	68	39	58	1,900 00	83	8	54	58	10	60
Buffalo.....	2	81	5,213	89	7	9	66	70	59	55	950 00	78	12	36	52	17	75
Burnett.....	2	13	702	13	....	5	12	11	9	9	1,200 00	12	10	6	11	4	12
Calumet.....	2	67	4,168	76	11	....	55	55	....	47	750 00	64	13	34	33	11	63
Chippewa.....	5	82	4,051	95	....	5	73	61	66	32	1,703 00	93	43	23	58	88	85
Clark.....	9	81	3,642	89	1	5	70	63	70	57	3,781 15	76	15	43	60	37	76
Columbia.....	5	146	8,402	164	14	4	115	176	93	113	2,815 00	144	21	65	61	45	133
Crawford.....	2	90	3,974	90	3	5	61	44	57	42	1,350 00	70	21	24	34	23	66
Dane, 1st district.....	4	126	5,922	135	32	4	92	98	88	109	1,600 00	121	22	57	62	50	118
Dane, 2d district.....	3	118	6,513	123	35	7	92	68	87	61	2,650 00	102	34	41	52	35	106
Dodge.....	2	190	12,238	219	42	....	160	152	118	143	7,500 00	188	59	92	110	49	176
Door.....	5	53	2,843	56	1	17	46	45	48	32	1,130 00	49	11	25	26	7	45

School-houses and School Appliances.

Manitowoc	4	110	9,827	122	19	2	90	89	93	78	\$1,975 00	107	21	71	84	23	99
Marathon	12	89	4,154	97	...	20	71	59	68	49	4,788 00	88	6	47	56	15	81
Marquette	3	27	1,444	37	...	1	50	25	15	24	1,900 00	19	9	13	18	2	18
Milwaukee, 1st district.	3	59	3,117	63	...	1	50	36	38	38	908 00	54	9	21	23	5	53
Milwaukee, 2d district.	...	35	2,691	45	14	...	30	31	28	23	800 00	35	1	26	31	2	28
Monroe	1	32	2,089	85	13	...	26	29	25	25	942 00	32	14	28	30	9	28
Oconto	8	127	7,239	144	4	4	99	97	104	82	4,307 00	116	18	34	41	11	107
Outagamie	3	35	1,809	35	2	6	32	25	29	30	1,063 00	33	15	27	25	7	31
Ozaukee	7	160	6,411	119	8	6	85	83	79	75	3,940 00	102	17	58	65	10	97
Pepin	1	61	4,825	69	37	...	54	56	45	53	550 00	59	23	39	47	16	56
Pierce	1	38	2,141	43	3	2	28	25	26	28	600 00	38	2	13	12	8	35
Polk	6	106	5,514	110	4	13	76	80	54	65	2,754 50	103	22	59	62	28	99
Portage	1	74	3,196	79	...	6	55	47	9	47	485 00	73	18	38	45	27	73
Price	4	86	3,763	89	...	2	69	59	62	43	1,119 45	82	8	34	30	4	75
Racine .....	...	6	230	4	...	4	4	4	4	4	...	8	1	6	5	3	5
Richland	2	76	3,589	82	25	1	59	56	56	59	1,631 08	70	10	27	31	14	66
Rock 1st district	9	123	5,970	123	2	5	89	82	106	87	5,018 00	118	45	73	67	49	108
Rock, 2d district	1	83	4,231	93	39	2	58	56	66	58	...	83	13	32	36	38	68
St. Croix	1	86	3,938	95	15	...	73	67	59	64	810 00	83	9	32	36	38	68
Sauk	3	100	2,881	107	4	17	63	63	50	70	845 00	97	14	36	49	36	79
Shawano	7	165	8,325	197	16	4	120	108	119	102	8,196 00	159	73	68	100	72	144
Sheboygan	5	56	2,875	57	2	22	50	48	42	37	3,925 00	52	4	36	31	7	45
Taylor	3	114	8,840	124	6	...	94	86	92	63	1,214 00	112	13	83	94	16	110
Trempealeau	2	19	782	22	...	3	19	19	19	12	773 65	20	3	6	9	3	19
Vernon	5	88	5,160	91	4	9	68	56	10	62	5,460 82	86	11	53	32	14	86
Walworth	7	148	7,669	156	4	5	100	87	97	74	3,189 00	138	25	37	58	38	131
Washington	3	126	7,788	161	28	3	112	112	76	95	3,185 31	123	10	72	67	41	103
Waukesha	2	99	7,651	112	53	3	93	74	51	63	1,700 00	99	19	43	46	14	92
Waupaca	5	118	8,141	143	49	3	99	99	104	99	8,575 00	118	27	67	65	33	111
Waushara	4	109	6,670	129	3	1	95	80	80	83	1,230 00	106	21	66	100	10	99
Winnebago	5	94	4,491	99	4	...	76	58	73	52	2,813 00	94	8	39	59	7	86
Wood	1	96	5,317	106	7	...	84	80	81	84	300 00	101	45	75	62	43	96
Totals	8	48	2,051	55	1	3	35	35	38	31	3,535 00	43	29	35	34	13	25
Totals	239	5,577	313,199	6,132	756	243	4,400	4,026	3,602	3,655	\$153,985	405,296	1,129	3,478	2,706	1,531	4,858

Valuation of School-houses — Sites, Enrollment, and Text-books.

TABLE No. V.
VALUATION OF SCHOOL-HOUSES — THEIR SITES, ENROLLMENT, AND TEXT-BOOKS.

COUNTIES.	VALUATION.				SITES.		ENROLLMENT.			TEXT BOOKS.					
	Highest valuation of school-house and site in the county.	Cash value of all school-houses in the county.	Cash value of all the sites.	Cash value of apparatus, etc.	No. of sites containing less than one acre.	No. of sites well enclosed.	Percentage of enrollment on number of children in the county.	Percentage of attendance on number enrolled in the public schools.	No. of districts which have adopted a list of text-books.	No. which use only text-books adopted.	No. of districts which purchase text-books.	No. which loan them to pupils.	No. which sell them to pupils.		
Adams	\$7,715 00	\$15,570 00	\$617 00	\$443 00	53	4	72.3	60.8	50	36	32	9	18		
Ashland	6,435 00	5,500 00	900 00	138 00	5	4	55	54	2	2	2	2	2		
Barron	19,300 00	33,177 00	1,637 00	2,031 50	7	6	77.4	60.3	60	54	50	22	27		
Bayfield	3,500 00	3,500 00	500 00	200 00	1	1	24	.....	1	.....	1	1	.....	
Brown	23,120 00	42,685 00	5,296 00	2,616 25	50	41	56.5	46	35	28	11	5	8		
Buffalo	3,066 00	48,378 75	2,437 50	2,790 00	45	24	69	67	63	61	55	4	51		
Burnett	2,040 00	4,425 00	315 00	726 00	1	5	35.6	31.2	13	13	13	11	2		
Calumet	5,000 00	31,000 00	4,015 00	2,378 00	48	39	54	64	48	33	21	1	20		
Chippewa	11,203 00	31,148 00	4,832 00	2,572 00	62	25	69.3	60.6	63	58	53	45	8		
Clark	14,600 00	49,255 25	2,744 50	3,947 85	32	32	64	51.4	62	60	62	47	14		
Columbia	40,610 00	72,897 00	7,012 25	2,260 50	109	36	74	58	73	43	12	2	10		
Crawford	9,485 00	21,618 00	1,478 00	2,313 77	54	15	66	53	60	44	10	3	6		
Dane, 1st dist. .	5,250 00	65,530 49	6,177 00	2,160 00	84	57	67	58.7	84	69	36	10	35		
Dane, 2d dist. .	20,945 00	57,925 00	5,633 00	2,532 00	75	32	62	50	60	41	33	4	29		
Dodge	15,000 00	130,655 00	14,435 00	4,600 00	163	92	68.6	64.5	80	64	29	7	21		
Door	9,780 00	16,361 00	2,935 00	1,468 75	21	14	62.5	49.6	31	31	22	11	12		

Valuation of School-houses—Sites, Enrollment, and Text-books.

Douglas.....	\$2,500 00	\$4,000 00	\$500 00	\$75 00	8.....	50	70	2	2	2
Dunn	3,556 00	47,969 00	9,848 00	3,515 00	45	63	57	62	52	43
Eau Claire.....	18,000 00	60,085 00	9,848 00	2,596 00	47	25	54	51	48	37
Fond du Lac....	33,202 00	73,610 00	10,890 00	2,932 60	140	74	66	85	54	17
Grant	27,500 00	167,840 00	11,179 00	6,541 00	127	85	73.5	113	93	56
Green	20,500 00	80,501 00	6,314 00	1,661 55	91	44	76.2	94	81	23
Green Lake....	13,880 00	34,123 00	2,778 00	772 50	51	32	68	35	24	14
Iowa.....	5,800 00	49,080 00	4,797 00	2,022 00	78	38	72.6	56	24	5
Jackson.....	39,571 00	56,283 00	2,412 20	1,317 20	38	15	68	65	46	14
Jefferson	82,975 00	124,358 35	10,950 00	3,916 00	101	64	70.6	80	64	28
Juneau.....	24,704 00	42,564 00	3,567 75	1,400 50	77	23	70	33	33	16
Kenosha	3,000 00	32,981 75	3,360 00	914 00	50	31	65	45	37	22
Kewaunee	21,568 00	30,264 00	3,409 00	2,182 00	29	34	48	23	22	8
La Crosse.....	4,500 00	36,075 00	2,950 00	2,367 00	43	29	68	36	36	27
La Fayette.....	35,000 00	92,835 64	7,066 00	4,489 00	79	68	65	73	37	31
Langlade.....	695 00	1,850 00	200 00	21 00	1.....	60	71.5	7	7	7
Lincoln	8,820 00	1,850 00	1,732 00	405 00	5.....	53.5	43.3	4	4	4
Manitowoc.....	40,050 00	115,529 00	13,369 00	4,485 50	85	50	50	48	42	27
Marathon	3,765 00	36,805 00	3,322 00	2,866 00	50	34	52	57	52	63
Marquette	11,470 00	25,825 00	3,563 00	1,042 00	9	12	58.8	9	2	5
Milwaukee.....	9,800 00	19,505 00	1,233 00	1,668 00	39	8	60	45	21	8
Milw'kee, 1st d't	19,844 00	34,775 00	4,394 00	823 00	30	17	48	53.5	8	2
Milw'kee, 2d d't	9,300 00	24,684 00	3,232 75	1,433 80	28	18	47	55.3	2	2
Monroe	32,110 00	65,902 90	6,475 50	2,886 00	102	52	73	66	3	22
Oconto.....	7,165 00	18,725 00	1,310 00	1,819 25	17	18	64	55	27	23
Ooutagamie	17,160 00	41,417 00	6,020 00	2,932 00	87	54	63	46	40	8
Ozaukee	19,435 00	40,005 00	7,520 00	2,945 00	52	40	53	35	30	16
Pepin.....	10,280 00	19,810 00	2,361 00	869 00	17	2	76	58	24	8
Pierce.....	23,210 00	43,643 50	2,774 00	3,233 00	85	26	63	61	79	62
Polk	1,500 00	27,005 00	1,584 00	2,868 00	16	21	54.7	58	54	48
Portage	11,467 00	25,335 85	1,420 00	1,061 00	50	29	60.5	65	45	35
Price.....	1,600 50	1,950 75	300 00	460 00	.....	87.6	53.3	6	9	2
Racine.....	8,700 00	44,805 00	5,599 00	1,848 75	69	39	58	35	28	15
Richland	2,100 00	38,249 00	4,260 00	2,926 50	92	41	73	31	24	3
Rock, 1st dist..	31,085 00	75,579 22	4,011 00	1,450 00	55	33	75	61.5	49	43
Rock, 2d dist..	8,000 00	50,531 00	6,603 00	1,468 00	62	41	75	59.5	38	13

Valuation of School-houses — Sites, Enrollment, and Text-books.

TABLE NO. V.—VALUATION OF SCHOOL-HOUSES—THEIR SITES, ENROLLMENT, AND TEXT-BOOKS—Con.

COUNTIES.	VALUATION.				SITES.		ENROLLMENT.		TEXT-BOOKS.					
	Highest valuation of school-house and site in the county.	Cash value of all school-houses in the county.	Cash value of all the sites.	Cash value of apparatus, etc.	No. of sites containing less than one acre.	No. of sites well enclosed.	Percentage of enrollment on number of children in the county.	Percentage of attendance on number enrolled in the public schools.	No. of districts which have adopted a list of text-books.	No. which use only text-books adopted.	No. of districts which purchase text-books.	No. which loan them to pupils.	No. which sell them to pupils.	
St. Croix.....	\$16,351 00	\$40,136 00	\$3,415 00	\$3,660 50	45	24	65	52	59	45	30	11	21	
Sauk.....	31,500 00	99,495 00	9,238 00	3,209 00	108	60	70	61	122	77	55	9	46	
Shawano.....	11,185 00	17,250 00	1,705 25	812 00	22	22	54.1	67	39	39	39	23	11	
Sheboygan.....	25,625 00	50,695 00	5,255 00	1,745 00	88	33	60	52	48	36	18	...	23	
Taylor.....	1,700 00	6,100 00	695 00	620 15	...	8	...	...	16	15	15	12	8	
Trempealeau.....	30,652 50	53,858 50	4,893 00	2,555 00	49	23	64	50	71	56	49	9	42	
Vernon.....	34,706 00	56,723 00	4,198 80	2,452 00	110	28	69.8	63.3	83	60	48	5	39	
Walworth.....	60,700 00	119,437 00	12,570 00	1,993 00	92	63	...	...	32	19	8	3	5	
Washington.....	30,198 00	74,965 00	7,436 00	3,810 90	94	15	52	57	52	45	25	3	20	
Waukesha.....	16,000 00	108,895 00	12,260 00	3,449 50	91	48	58	58	72	56	47	...	43	
Waupaca.....	6,500 00	21,280 00	4,625 00	2,085 00	92	40	70	57	77	65	56	12	43	
Waushara.....	12,775 00	34,378 00	2,767 50	2,054 00	66	18	67	59	88	72	57	30	29	
Winnebago.....	25,800 00	65,923 00	6,149 00	8,147 00	75	43	61	55	69	58	21	...	20	
Wood.....	8,253 00	20,765 00	1,915 00	1,036 04	41	2	68	48	...	...	...	...	...
Totals and av.	\$40,610 00	\$3,085,887 95	\$309,360 80	\$140,588 86	3,733	1,981	av. 63.9	av. 59.9	3,292	2,467	1,753	574	1,175	

*Libraries, Town Schools, State Tax, and High Schools.*TABLE No. VI.
LIBRARIES, TOWN SCHOOLS, STATE TAX, AND HIGH SCHOOLS.

COUNTIES.	LIBRARIES.						TOWN SCHOOLS.					No. of high schools in the county, including those of the independent cities.
	No. of districts in the county having libra-ries.	No. of volumes added during the year.	Amount expended for the libraries during the year.	No. of volumes now in the libraries.	Cash value of all the libraries.	How many town libra-ries in the county.	No. of towns in county favorable to town system.	No. of towns which have voted on the question.	No. of towns favorable to a town high school.	No. of towns which have voted on the question.	No. of towns favorable to a State school tax.	
Adams	1	.....	.....	36	\$40 00	1	.....	.....	.....	.....	.....	.....
Ashland .....	.....	.....	.....	.....	.....	.....	2	10	1	2	13	.....
Barron .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bayfield .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown	3	91	\$133 50	224	384 60	1	.....	.....	.....	.....	.....	.....
Buffalo .....	.....	.....	.....	.....	.....	1	2	.....	1	.....	6	4
Burnett	2	.....	.....	.....	282 50	.....	.....	.....	.....	.....	.....	.....
Calumet .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chippewa .....	.....	.....	.....	.....	.....	.....	4	5	1	.....	11	.....
Clark	3	.....	.....	287	160 00	3	1	2	2	2	5	.....
Columbia	13	16	22 00	340	288 50	.....	.....	.....	.....	.....	.....	.....
Crawford .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dane, 1st district	1	3	10 00	122	140 00	.....	.....	1	4	6	6	.....
Dane, 2d district	9	95	37 04	543	265 00	.....	.....	.....	1	2	2	.....
Dodge	21	148	133 85	765	866 00	.....	.....	.....	.....	.....	.....	.....
Door	2	40	19 25	185	137 00	.....	.....	2	.....	2	1	.....

Libraries, Town Schools, State Tax, and High Schools.

TABLE NO. VI.—LIBRARIES, TOWN SCHOOLS, STATE TAX, AND HIGH SCHOOLS — Continued.

COUNTIES.	LIBRARIES.				TOWN SCHOOLS.				No. of high schools in the county, including those of the independent cities.			
	No. of districts in the county having libraries.	No. of volumes added during the year.	Amount expended for the libraries during the year.	No. of volumes now in the library.	Cash value of all the libraries.	How many town libraries in the county.	No. of towns in county favorable to town system.	No. of towns which have voted on the question.		No. of towns favorable to a town high school.	No. of towns which have voted on the question.	No. of towns favorable to a State school tax.
Douglas.....	3	.....	\$28 00	108	\$178 00	2	.....	.....	.....	.....	.....	1
Dunn.....	3	159	15 00	226	425 00	2	.....	.....	.....	.....	.....	3
Eau Claire.....	4	100	110 00	283	237 00	4	.....	.....	.....	.....	.....	5
Fond du Lac.....	9	29	132 00	952	855 00	1	.....	.....	.....	.....	.....	6
Grant.....	3	20	20 00	1,221	782 00	1	.....	.....	.....	.....	.....	2
Green.....	4	.....	.....	126	87 50	.....	.....	.....	.....	.....	.....	4
Green Lake.....	.....	8	18 50	23	94 50	.....	.....	.....	.....	.....	.....	4
Iowa.....	5	24	18 01	226	91 20	1	2	.....	1	.....	4	1
Jackson.....	21	3	27 84	493	692 00	.....	1	.....	.....	.....	8	4
Jefferson.....	4	290	14 00	296	280 00	.....	.....	.....	.....	.....	.....	5
Juneau.....	8	20	30 00	798	735 00	2	.....	.....	.....	.....	.....	1
Kenosha.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Kewaunee.....	1	15	16 50	20	25 00	.....	3	.....	7	.....	10	2
La Crosse.....	2	22	.....	113	165 00	.....	2	2	2	.....	.....	2
La Fayette.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Langlade.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Lincoln.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Manitowoc.....	6	28	40 00	468	399 00	2	3	.....	1	.....	6	2

Libraries, Town Schools, State Tax, and High Schools.

[illegible]

*Private Schools not Incorporated.*TABLE No. VII.
PRIVATE SCHOOLS NOT INCORPORATED.

COUNTIES.	SCHOOLS, TEACHERS, AND PUPILS.										FINANCIAL STATEMENT.			
	No. of such schools in the county.	No. of teachers engaged in such schools.	Av. number of days such sch's have been taught.	No. of pupils registered in them, that have not attended public school.	Average number in daily attendance.	Percentage of attendance on whole number enrolled.	Percentage of attendance while members of such schools.	Receipts.				Expenditures.		
								From tuition.	From donations.	From all other sources.	Total receipts.	For teachers' wages.	For building and repairs.	For all other purposes.
Adams .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ashtab .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barron .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bayfield	2	4200	145	.....	97	.....	.....	.....	\$1,650 00	\$100 00	\$1,750 00	\$500 00	\$1,000 00	\$250 00
Brown	4	8186.6	280	40	53	80	.....	.....	.....	.....	.....	.....	.....	.....
Buffalo	6	8145	124	27	152	153	.....	.....	109 00	28 00	137 00	131 00	6 00	.....
Burnett	13	15109.6	241	112	176- ¹¹ / ₁₆	90	.....	.....	.....	.....	.....	.....	.....	.....
Calumet	7	7166	156	12	75	75	.....	.....	.....	.....	.....	.....	.....	.....
Chippewa	1	2200	.....	.....	60	.....	.....	.....	300 00	.....	300 00	300 00	.....	.....
Clark .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Columbia	2	2 83	.....	.....	29	80	.....	\$198 00	.....	.....	198 00	198 00	.....	.....
Crawford	4	4 47	9	42	35	35	.....	176 00	51 00	.....	237 00	237 00	3 00	.....
Dane, 1st dis.	9	10 98.2	106	26	77- ¹ / ₂	.....	.....	576 00	.....	.....	576 00	576 00	.....	.....
Dane, 2d dis.	8	9148.6	253	28	208	175	.....	.....	.....	.....	.....	.....	.....	.....
Dodge	26	27218	1,460	82	86	58	.....	536 00	2,454 00	3,157 00	6,147 00	5,882 00	125 00	140 00

Private Schools not Incorporated.

[illegible]

TABLE NO. VII.—PRIVATE SCHOOLS NOT INCORPORATED — Continued.

TABLE NO. VII.—PRIVATE SCHOOLS NOT INCORPORATED—Continued.														
FINANCIAL STATEMENT.														
COUNTIES.	SCHOOLS, TEACHERS, AND PUPILS.							Receipts.				Expenditures.		
	No. of such schools in the county.	No. of teachers engaged in such schools.	Av. number of days such sch's have been taught.	No. of pupils registered in them, that have not attended public school.	Average number in daily attendance.	Percentage of attendance on whole number enrolled.	Percentage of attendance while members of such schools.	From tuition.	From donations.	From all other sources.	Total receipts.	For teachers' wages.	For building and repairs.	For all other purposes.
Rock, 2d dist.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Croix.	8	8 168	120	36 62	50	...	...	\$350 00	\$390 00	\$175 00	\$915 00	\$800 00	...	\$115 00
Sauk.	4	4 90	145	55 133 ³ / ₈	115	...	...	...	...	...	...	...	...	...
Shawano.	16	17 142.5	162	47 234	104	...	...	446 32	546 89	58 27	1,051 48	922 75	\$41 55	307 18
Sheboygan.	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Taylor.	3	4 63	...	...	...	55	...	...	...	...	...	...	...	...
Trempealeau.	14	10 80.1	20	24 38 ¹ / ₂	33 ³ / ₈	...	...	395 20	102 00	...	497 20	497 20	...	...
Vernon.	3	4 185	95	42 100	...	...	...	260 00	20 00	...	280 00	275 00	...	5 00
Walworth.	15	19 188.2	511	62 64	64	...	...	2,135 70	101 00	326 45	2,583 15	2,495 00	55 45	60 00
Washington.	4	9 196.7	269	...	80	...	...	350 00	403 00	...	753 00	700 00	10 00	5 00
Waushara.	11	15 187.5	403	30 70	70	...	...	357 60	1,600 00	1,067 59	2,867 59	1,123 55	2,550 00	221 90
Waushara.	4	5 115	50	...	70	...	...	500 00	...	...	500 00	400 00	...	100 00
Winnebago.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wood.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tot. and av.	325	404 137.9	9,860 49.9	87.4	57.7	\$23,300 85	\$12,303 57	\$10,049 90	\$45,654 32	\$35,869 65	\$6,808 37	\$3,896 49	...	...

Private Schools not Incorporated.

*Financial Statistics — Receipts.*TABLE No. VIII.
FINANCIAL STATISTICS — RECEIPTS.

COUNTIES.	From money on hand, August 31, 1880.	From taxes levied for building and repair- ing.	From taxes levied for teachers' wages.	From taxes levied for apparatus and library.	From taxes levied at an- nual town meeting.	From taxes levied by county supervisors.	From income of school fund	From all other sources.	Total amount received during the year.
Adams.....	\$2,134 62	\$930 08	\$6,128 93	\$41 00	\$34 00	\$1,046 28	\$1,027 40	\$189 17	\$11,586 48
Ashland.....	683 93	.....	.....	.....	3,500 00	150 00	117 44	1,511 20	5,962 57
Barron.....	2,056 48	4,212 43	8,265 33	145 00	2,151 23	564 03	677 90	9,938 63	28,011 03
Bayfield.....	947 81	50 60	100 00	125 00	.....	84 00	84 00	170 00	2,360 95
Brown.....	8,967 33	2,419 35	15,277 89	444 60	1,852 81	3,805 09	4,243 61	2,634 08	38,421 43
Buffalo.....	7,397 80	2,669 06	14,653 28	393 17	.....	3,619 99	2,425 89	2,641 32	33,800 51
Burnett.....	2,093 22	90 00	335 00	45 00	2,078 74	383 99	274 02	129 30	5,456 47
Calumet.....	6,733 69	960 06	10,846 50	47 67	.....	2,260 47	2,774 23	1,180 09	25,532 71
Chippewa.....	7,733 56	7,774 00	7,860 89	27 13	11,890 70	2,141 89	1,508 54	7,682 21	48,066 68
Clark.....	8,484 50	4,405 20	1,540 13	243 60	471 23	1,273 69	1,155 43	6,092 62	37,578 61
Columbia.....	8,313 74	8,778 76	23,683 31	517 75	2,309 05	3,223 46	3,470 02	3,745 06	48,224 38
Crowford.....	4,437 57	1,611 50	8,227 15	106 40	569 58	2,315 55	2,025 71	1,085 67	20,439 13
Dane, 1st district	6,923 93	5,341 56	19,390 78	153 30	2,232 35	3,427 92	3,204 26	1,158 32	41,492 03
Dane, 2d district	7,533 77	4,149 43	18,078 29	63 01	438 35	4,168 38	3,098 26	1,608 99	39,268 73
Dodge.....	18,402 30	2,006 45	29,899 80	542 27	1,969 47	5,992 29	5,774 72	3,380 13	67,967 43
Door.....	7,008 33	1,542 11	8,359 45	251 63	1,883 55	1,418 05	1,753 05	2,869 94	24,086 11
Douglas.....	126 91	353 38	1,777 25	131 98	.....	213 85	133 63	325 17	2,935 26
Dunn.....	9,886 68	6,358 02	18,088 68	131 00	1,816 17	2,018 90	2,400 69	4,213 97	45,278 56
EAU Claire.....	14,234 77	6,038 27	23,799 45	424 00	137 40	2,257 92	2,195 07	10,733 08	59,819 96

Financial Statistics -- Receipts.

TABLE NO. VIII.—FINANCIAL STATISTICS — RECEIPTS — Continued.

COUNTIES.	From money on hand, August 31, 1880.	From taxes levied for building and repair- ing.	From taxes levied for teachers' wages.	From taxes levied for apparatus and library.	From taxes levied at an- nual town meeting.	From taxes levied by county supervisors.	From income of school fund.	From all other sources.	Total amount received during the year.
Fond du Lac ...	\$8,430 55	\$1,205 19	\$23,430 46	\$240 85	\$1,263 72	\$4,355 68	\$5,350 66	\$2,451 50	\$46,728 61
Grant	15,946 59	6,817 80	43,290 54	130 11	959 90	5,818 05	6,180 60	4,652 64	83,796 24
Green	7,681 76	4,637 87	24,538 48	1,288 30	418 14	3,054 96	3,176 47	3,895 11	48,741 09
Green Lake	3,290 77	1,442 85	10,043 61	87 15	525 00	1,563 10	1,631 18	539 61	18,882 88
Iowa	5,767 59	3,757 06	18,847 15	298 25	539 96	3,104 86	3,430 46	1,854 35	37,950 09
Jackson	5,454 16	2,737 53	14,467 75	27 00	814 78	1,424 66	1,465 45	2,406 73	28,798 02
Jefferson	10,762 10	2,807 00	23,146 92	358 85	1,621 04	4,574 51	4,431 91	6,905 66	51,330 00
Juneau	6,234 76	3,112 68	15,348 14	58 05	448 40	3,139 55	2,157 71	2,478 74	30,886 57
Kenosha	2,922 34	1,360 61	11,539 02	83 05	.....	2,231 41	1,203 75	1,604 10	21,236 28
Keweenaw	4,723 23	1,169 08	8,808 22	31 15	813 86	2,507 76	2,578 58	412 18	21,269 62
La Crosse	5,254 56	1,643 75	11,052 34	352 72	200 00	1,783 47	2,215 55	1,158 57	23,570 96
La Fayette	7,018 39	2,456 42	21,697 81	1,063 52	2,185 61	2,940 78	3,027 36	4,493 93	44,883 82
Langlade .....	.....	.....	748 03	.....	.....	.....	41 70	1 88	797 53
Lincoln	1,840 38	.....	100 74	.....	.....	.....	2,381 04	408 40	5,466 04
Manitowoc	18,485 51	1,891 35	22,126 98	78 96	3 96	681 02	6,040 20	2,225 25	66,113 59
Marathon	13,045 92	2,697 20	12,861 36	452 94	2,291 35	12,973 99	1,697 38	8,281 49	44,549 55
Marquette	2,208 22	2,457 13	6,183 00	45 00	3,837 32	1,540 88	1,024 28	1,347 26	16,502 77
Marquette, 1st d't	3,482 23	1,233 10	5,649 91	.....	2,308 21	829 79	1,456 72	829 70	14,232 75
Milwaukee, 1st d't	7,198 28	2,426 47	6,754 27	80 87	198 25	1,362 84	1,771 89	378 83	23,231 67
Milwaukee, 2d d't	4,845 56	1,528 80	6,764 20	88 00	.....	4,621 06	1,568 51	1,683 29	20,155 86
Monroe	9,753 88	2,720 55	25,546 06	33 97	933 41	3,052 52	3,559 95	4,615 72	50,215 14

Financial Statistics — Receipts.

Oconto.....	\$6,489 11	\$592 00	\$3,692 05	\$2,736 17	\$416 93	\$658 26	\$2,428 47	\$16,832 25
Outagamie.....	8,232 01	3,056 83	13,311 00	75 23	3,633 82	3,334 86	1,409 36	33,327 31
Ozaukee.....	4,215 29	1,561 36	11,882 52	22 26	3,279 00	2,744 80	1,055 43	25,772 37
Peplin.....	2,503 14	898 45	6,685 91	47 21	850 84	875 08	1,040 76	13,160 76
Pierce.....	11,969 89	436 72	20,553 49	142 00	2,017 88	2,362 91	8,203 06	50,640 94
Polk.....	6,833 46	1,169 82	8,431 50	166 50	1,118 96	1,444 43	5,610 25	25,442 76
Portage.....	4,636 78	1,000 13	9,451 27	18 48	1,770 57	1,965 53	1,255 35	20,374 25
Price.....	506 73	.....	.....	4,276 17	.....	82 70	49 00	4,914 60
Racine.....	4,364 95	1,706 34	14,604 17	119 21	2,384 98	2,104 60	924 74	24,192 24
Richland.....	7,234 17	3,613 62	13,893 05	57 77	3,514 44	3,090 82	4,369 47	36,736 98
Rock, 1st district	6,065 43	1,965 07	14,227 06	344 84	3,301 12	1,873 46	1,806 04	30,866 47
Rock, 2d district	8,105 23	3,308 90	14,595 44	245 00	3,980 76	1,654 67	1,570 53	33,806 01
St. Croix.....	7,291 56	3,602 64	23,839 88	204 41	1,336 40	2,297 40	2,783 21	40,003 07
Sauk.....	10,930 27	10,050 79	29,495 54	446 58	4,289 19	4,285 74	9,296 83	68,855 94
Shawano.....	5,393 19	1,289 90	4,185 80	153 00	1,002 55	1,142 32	1,589 59	16,297 83
Sheboygan.....	10,734 57	1,807 40	15,908 32	41 16	1,505 10	4,484 76	1,713 73	40,015 20
Taylor.....	2,046 13	1,958 17	3,112 61	105 00	610 86	248 29	2,580 56	10,942 30
Trempealeau.....	7,883 80	2,023 10	15,164 42	177 18	2,036 31	2,716 12	1,855 73	31,721 13
Vernon.....	9,679 12	3,027 12	15,895 36	132 37	3,410 22	3,906 77	2,970 95	39,885 28
Walworth.....	10,311 44	2,025 58	33,943 06	10 00	3,229 31	3,352 77	5,255 01	61,065 59
Washington.....	8,398 48	1,783 89	11,482 17	308 26	5,191 30	3,808 52	2,039 47	35,996 07
Waukesha.....	10,593 40	6,319 56	27,986 29	81 22	4,309 10	4,130 79	4,025 63	57,616 44
Waupaca.....	8,211 93	2,495 43	17,265 94	446 04	2,898 10	3,265 86	3,342 10	38,540 38
Wausara.....	4,464 34	1,337 84	9,942 75	73 33	2,441 89	1,892 19	2,217 73	22,370 07
Winnebago.....	8,231 96	1,203 84	15,229 00	148 35	4,482 87	2,791 87	2,235 94	34,333 83
Wood.....	4,011 86	2,795 25	8,002 47	732 45	124 87	1,095 71	2,873 69	21,211 20
Totals.....	\$448,823 98	\$162,364 85	\$892,563 21	\$13,171 07	\$171,836 79	\$156,201 05	\$187,816 52	\$2,118,349 37

Financial Statistics — Expenditures.

TABLE NO. IX.
FINANCIAL STATISTICS — EXPENDITURES.

COUNTIES.	For building and repairing	For apparatus and library.	For services of male teachers.	For services of female teachers.	For old indebtedness.	For school furniture, registers, records, etc.	For all other purposes.	Total amount paid out during year.	Money on hand August 31, 1881.
Adams.....	\$358 39	\$41 60	\$1,884 75	\$6,410 91	\$259 60	\$217 28	\$753 80	\$9,966 33	\$1,620 15
Ashland.....	159 33	8 00	2,165 00	933 00	.....	111 30	1,267 32	4,643 95	2,002 53
Barron.....	8,492 17	179 79	3,964 80	5,730 00	2,244 60	430 05	1,808 03	22,849 44	5,161 61
Bayfield.....	31 30	126 49	1,000 00	300 00	.....	30 00	147 81	1,635 60	725 35
Brown.....	2,859 96	327 31	11,710 25	11,649 92	116 87	721 51	2,757 67	29,983 43	8,438 03
Buffalo.....	3,423 45	143 59	11,944 00	7,118 50	978 85	597 26	2,642 12	26,847 77	6,952 74
Burnett.....	1,433 53	216 56	522 00	1,616 00	135 70	303 46	258 03	4,457 38	1,018 28
Calumet.....	1,229 15	166 60	6,748 95	9,216 17	147 36	232 95	1,919 79	19,551 07	6,981 74
Chippewa.....	6,064 76	496 46	4,725 00	19,215 06	1,525 99	220 20	6,360 31	37,159 69	9,904 43
Clark.....	4,973 70	531 61	3,707 75	13,391 41	2,291 44	500 61	3,999 16	29,370 68	8,207 93
Columbia.....	4,973 07	195 06	11,614 31	19,883 59	1,557 39	637 77	5,109 23	41,888 45	6,872 04
Crawford.....	1,729 98	69 17	4,472 50	7,565 99	930 81	548 58	1,177 17	16,494 20	3,944 93
Dane, 1st district..	3,763 54	203 61	8,711 00	16,521 48	1,136 48	993 81	3,673 66	35,042 89	6,052 56
Dane, 2d district..	4,151 19	87 74	9,951 50	14,539 29	908 61	706 23	3,626 55	34,254 69	5,095 34
Dodge.....	2,269 01	419 02	13,156 12	21,170 70	737 30	833 92	2,277 46	51,853 53	16,113 90
Door.....	2,741 72	141 95	4,259 00	6,731 60	737 03	487 60	2,034 61	17,133 51	6,932 60
Douglas.....	202 65	50 00	870 00	579 75	182 50	132 32	232 75	2,317 97	744 20
Dunn.....	5,780 06	92 06	6,810 50	17,036 38	643 37	676 76	4,224 75	36,396 30	8,887 21
Eau Claire.....	3,898 43	337 49	8,755 01	21,441 80	1,818 98	397 40	9,616 00	46,265 11	13,554 85
Fond du Lac.....	1,362 06	43 06	10,119 60	20,477 65	487 58	551 64	3,676 99	36,718 58	10,010 03
Grant.....	5,512 28	315 15	19,133 47	30,330 54	2,271 64	800 24	9,610 01	67,963 33	15,832 90
Green.....	3,926 27	109 84	11,781 64	18,604 71	438 95	1,723 42	4,434 32	41,019 15	7,721 84

Financial Statistics — Expenditures.

Green Lake	1,894 45	20 05	4,525 60	7,470 96	249 38	200 94	1,849 16	15,979 98	3,125 49
Iowa	5,526 97	425 76	10,241 50	11,525 05	725 42	342 90	3,334 77	33,572 98	4,500 80
Jackson	3,201 15	123 86	5,377 55	11,859 38	551 50	290 14	2,559 36	23,942 94	4,855 08
Jefferson	4,075 95	179 46	13,013 41	18,349 78	1,285 84	1,416 10	6,720 45	44,287 62	6,915 22
Juneau	2,269 24	123 58	7,877 80	11,467 09	208 42	584 03	3,014 22	25,430 16	6,665 75
Kenosha	2,512 63	115 15	5,551 00	7,613 01	436 02	597 29	2,110 08	18,932 84	2,283 44
Kewaunee	792 96	120 93	6,993 95	4,881 18	378 77	356 21	1,912 76	15,623 74	3,745 88
La Crosse	1,309 92	51 05	7,907 50	6,286 94	360 02	295 77	2,369 97	18,581 17	4,989 79
La Fayette	4,263 37	1,174 81	13,085 40	13,531 15	312 00	936 07	4,770 13	38,071 93	6,811 89
Lac du Flambeau	96 37	2 00	100 00	518 00	.....	.....	151 02	797 41	.....
Lancaster	364 05	152 69	1,549 00	1,604 00	85 65	92 83	815 71	4,663 92	1,545 28
Manitowoc	3,215 85	177 91	23,561 25	17,506 00	1,188 18	469 53	6,092 21	52,210 93	13,902 66
Marathon	6,440 72	459 91	6,759 86	11,379 21	2,105 64	950 52	3,020 04	31,501 31	15,095 69
Marquette	1,743 05	124 15	2,350 50	6,371 25	105 00	353 35	3,463 91	14,510 21	1,892 64
Marquette	1,683 04	27 90	3,004 05	5,642 30	500 29	93 13	1,249 08	12,199 79	2,396 41
Milwaukee, 1st dist	1,469 72	65 70	4,857 75	8,137 80	579 52	593 54	1,552 17	16,944 50	6,231 02
Milwaukee, 2d dist	1,854 17	133 65	5,804 00	4,647 95	576 37	537 61	1,321 54	15,595 29	4,560 57
Monroe	5,323 10	79 17	9,149 60	18,501 31	472 73	1,443 08	4,115 84	39,184 83	1,103 31
Oconto	2,028 35	60 60	2,641 85	4,404 85	887 06	488 08	1,310 43	11,722 84	4,534 61
Outagamie	3,673 59	337 57	6,560 77	13,399 15	937 59	306 19	2,515 46	27,752 29	5,575 02
Ozaukee	1,398 15	48 56	13,192 50	5,380 80	405 35	447 06	1,994 97	22,613 30	3,159 01
Pepin	9,977 48	63 45	3,135 00	5,606 26	44 74	481 20	1,107 82	11,415 45	1,745 31
Pierce	9,418 82	135 15	9,413 30	14,818 05	2,115 05	596 43	6,103 59	42,600 39	8,040 51
Polk	1,345 43	184 02	4,914 50	11,054 65	435 37	471 98	3,332 85	21,738 80	3,703 96
Portage	918 44	39 96	3,539 00	3,340 94	707 17	207 79	1,832 92	16,137 76	4,236 49
Price	404 33	35 00	.....	1,380 00	344 00	80 00	844 15	520 84	896 76
Racine	2,629 88	26 76	4,955 25	11,988 54	337 10	453 94	2,545 44	33,127 40	3,816 27
Richland	4,287 80	178 10	7,419 23	13,670 96	612 95	548 07	2,435 39	29,152 50	6,294 43
Rock, 1st district	1,612 05	307 93	5,484 25	12,888 70	362 00	205 14	3,291 33	24,241 40	6,635 07
Rock, 2d district	3,096 60	117 90	4,203 18	14,000 39	237 70	497 00	3,344 19	25,486 96	8,319 05
St. Croix	3,207 20	202 23	10,404 73	14,996 66	1,030 78	609 02	4,744 27	45,184 07	7,184 59
St. Paul	10,100 49	174 92	13,969 95	25,286 70	2,170 34	1,369 49	5,793 74	56,865 54	9,990 40
Shawano	2,255 76	178 14	2,641 50	4,654 17	296 75	316 78	1,396 83	11,818 16	4,566 21
Sheboygan	2,343 36	54 22	14,548 00	12,814 94	85 94	365 33	3,854 47	33,565 36	6,449 54
Taylor	1,301 28	195 92	419 50	3,225 75	1,129 47	214 66	1,883 25	7,878 45	3,093 85
Waukesha	2,443 91	196 92	7,879 25	12,035 50	1,438 82	494 62	3,229 98	26,689 00	5,453 07

Financial Statistics — Expenditures.

TABLE No. IX. — FINANCIAL STATISTICS — EXPENDITURES — Continued.

COUNTIES.	For building and repairing.	For apparatus and library.	For services of male teachers.	For services of female teachers.	For old indebtedness.	For school furniture, registers, records, etc.	For all other purposes.	Total amount paid out during year.	Money on hand, August 31, 1881.
Vernon.....	\$3,661 99	\$214 41	\$10,985 48	\$12,006 53	\$496 85	\$381 67	\$4,113 46	\$31,860 39	\$8,024 89
Walworth.....	4,226 92	67 47	12,423 10	24,867 95	1,343 97	725 44	6,656 82	51,748 83	9,408 11
Washington.....	2,257 05	107 59	14,977 78	8,857 60	225 69	816 23	3,550 84	30,549 75	5,359 43
Waukesha.....	6,224 00	183 76	12,477 75	22,465 55	860 31	963 49	6,177 45	49,449 99	8,585 63
Waupaca.....	2,274 66	154 01	6,658 89	15,708 57	1,388 49	371 44	4,365 05	30,921 11	7,419 17
Waushara.....	2,632 83	34 80	3,387 50	9,848 47	424 52	205 60	1,985 00	18,518 72	3,851 35
Winnebago.....	934 44	133 41	6,293 39	13,994 75	1,204 70	562 09	3,237 82	26,360 60	7,963 23
Wood.....	4,148 57	279 05	3,039 60	4,335 50	891 21	695 63	2,185 93	15,575 54	5,635 66
Totals	\$197,165 09	\$11,570 74	\$475,282 12	\$741,818 14	\$18,982 72	\$34,361 68	\$210,369 01	\$1,741,359 04	\$396,297 70

*Teachers' Certificates and Normal School Teachers.*TABLE No. X.
TEACHERS' CERTIFICATES AND NORMAL SCHOOL TEACHERS.

COUNTIES.	No. of teachers holding State certificates.	NUMBER CERTIFICATES ISSUED.						NUMBER CERTIFICATES REFUSED.						STATE CERTIFICATES.				No. of teachers who are graduates of Normal Schools.	No. of other teachers who have attended Normal Schools.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Male.			Female.			Male.			Female.			At State examination.	To the graduates of the Colleges and Universities.	To the graduates of the State Normal Schools.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
		1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.				Total.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Adams.....	1	1	4	8	1	1	2	68	83	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Teachers' Certificates and Normal School Teachers.

TABLE NO. X.—TEACHERS' CERTIFICATES AND NORMAL SCHOOL TEACHERS—Continued.

COUNTIES.	No. of teachers holding State certificates.		NUMBER CERTIFICATES ISSUED.						NUMBER CERTIFICATES REFUSED.						STATE CERTIFICATES.				No. of teachers who are graduates of Normal Schools.	No. of other teachers who have attended Normal Schools.				
			Male.			Female.			Male.			Female.									At State examination.			
			1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	Total.			To the graduates of the Colleges and Universities.	To the graduates of the State Normal Schools.	No. of teachers who are graduates of Normal Schools.	No. of other teachers who have attended Normal Schools.
Eau Claire.....	9	1	1	13	3	7	86	110	...	...	...	...	...	...	...	15	...	1	4	7
Fond du Lac.....	5	2	5	44	...	6	180	237	...	...	...	...	...	...	...	100	...	1	4	52
Grant.....	25	9	8	70	...	9	227	323	4	8	68	8	205	293	...	2	5	23	92					
Green.....	...	2	11	29	1	3	149	194	...	...	25	...	...	...	...	55	...	1	1	20
Green Lake.....	1	1	4	14	...	1	69	89	...	...	11	...	...	...	...	33	...	1	...	12
Iowa.....	...	7	14	58	5	8	121	193	3	5	32	2	18	208	...	259	...	...	...	...
Jackson.....	1	1	3	23	1	8	96	132	...	...	...	...	...	...	...	32	...	...	...	5
Jefferson.....	2	7	3	53	1	19	157	240	...	1	...	...	75	90	...	90	...	...	...	...
Juneau.....	...	2	7	41	2	10	99	161	...	...	...	...	...	...	...	53	...	...	...	...
Kenosha.....	5	2	3	23	1	4	41	74	...	...	...	...	...	...	...	32	...	...	...	...
Kewaunee.....	1	...	5	9	...	3	18	35	...	1	12	...	25	33	...	53	...	...	...	...
La Crosse.....	1	...	12	40	...	4	59	115	...	...	23	...	20	33	...	32	...	...	...	...
LaFayette.....	1	1	4	50	3	10	125	193	2	5	20	1	7	70	...	60	...	...	...	...
Langlade.....	...	...	...	1	...	...	14	15	...	...	1	...	...	...	...	105	...	2	15	50
Lincoln.....	1	1	1	10	...	1	10	15	...	...	...	...	...	...	...	3	...	...	...	...
Manitowoc.....	9	6	8	83	4	2	59	162	...	...	1	...	4	5	...	5	...	...	...	...
Marathon.....	1	1	6	30	...	...	80	107	...	...	...	...	...	...	...	23	...	2	...	...		
Marquette.....	...	1	3	6	...	7	27	44	...	...	...	...	...	...	...	...	...	1	...	...		
Marquette.....	...	...	4	17	...	10	93	124	...	...	20	...	...	...	...	110	...	...	...	...
Milwaukee, 1st dis.....	...	2	4	4	13	3	30	54	...	...	...	...	...	...	...	6	...	1	1	3

Teachers' Certificates and Normal School Teachers.

Milwaukee, 2d dis.	1	3	19	...	31	54	...	7	...	10	17	...	1	8	15
Monroe	3	2	3	44	188	245	...	15	...	82	47	...	1	8	9
Ontonio	1	3	9	...	27	44	...	...	...	12	12	...	3	...	9
Osgamie	2	1	20	...	120	142	...	1	14	20	35	...	4	...	10
Ozaukee	7	4	37	...	27	74	...	6	...	8	14	...	7	...	7
Pepin	2	4	14	...	48	73	...	3	9	19	31	...	...	...	16
Pierce	2	5	30	...	96	153	...	1	5	68	93	...	...	1	17
Polk	...	...	21	...	70	102	...	2	1	21	29	...	...	...	19
Portage	4	7	15	...	72	94	...	...	...	44	44	...	...	...	...
Price	...	...	3	...	4	7	...	...	...	...	...	...	...	...	...
Racine	1	3	27	...	74	122	...	...	...	60	60	...	2	...	4
Richland	3	8	17	...	67	112	...	3	32	132	160	...	...	8	8
Rock, 1st district	2	6	32	...	113	170	...	...	...	20	20	...	1	1	12
Rock, 2d district	3	9	4	...	47	63	...	8	...	4	7	...	2	2	10
St. Croix	5	7	31	...	106	165	...	...	...	68	68	...	2	1	60
Sauk	9	6	66	...	188	263	...	...	...	64	64	...	1	1	19
Shawano	...	...	17	...	44	64	...	...	...	27	27	...	5	5	6
Sheboygan	3	1	54	...	84	146	...	...	...	106	106	...	...	...	20
Taylor	...	...	2	...	20	22	...	...	...	9	9	...	...	...	3
Traverse	...	...	7	...	108	165	...	1	13	24	45	...	6	1	6
Traverse	...	...	36	...	96	172	...	8	7	85	82	...	2	2	5
Vernon	2	11	36	...	11	208	...	2	29	11	69	...	...	9	52
Walworth	...	...	44	...	148	208	...	...	11	58	69	...	...	2	50
Washington	2	2	73	...	80	156	...	4	8	20	39	...	2	10	30
Waushara	7	1	50	...	148	217	...	...	...	...	...	...	...	4	40
Waushara	1	5	7	...	110	148	...	...	12	50	62	...	1	4	40
Waushara	2	6	28	...	100	143	...	10	31	78	127	...	...	2	6
Winnebago	16	5	17	...	133	165	...	1	8	48	64	...	2	9	38
Wood	...	...	15	...	46	61	...	...	...	...	...	...	...	14	...
Totals	166	148	320	1,763	5,434	8,084	26	71	575	9	96	1,781	24	56	990

Text-books.

TABLE No. XI.
TEXT-BOOKS.

COUNTIES.	SPELLING.										READING.													
	Harvey.	Independent.	McGuffey.	National.	Sanders.	Sanders's Union.	Swinton.	Harper.	Webb.	Webster.	Willson.	New American.	Appleton.	American Educational.	Sheldon.	Willson.	Harvey.	Independent.	McGuffey.	National.	Sanders.	Sanders's Union.	Webb's Model.	
Adams					6	29	16			15			16	3	1							6	38	
Ashland							3				1		1	1						3				
Barron		8	1		2	14	12				20		9				6	2		1		10		
Bayfield														1										
Brown			27		2		39					20		22			3		24				5	
Buffalo	1			41	9			3		12			42	6			2			21		1		
Burnett			1	5				4			2					9		3						
Calumet	26			10	7		15							18			25			14	6			
Chippewa	3			17		13	55							61						17				
Clark			1			19	15	4						10	7	35	7						9	
Columbia	16				65	19	7				24			9		25	23					16		
Crawford			6		38	38	6				17		6	2	2	4			8			42	24	
Dane, 1st dist.	1	1	1	3	77	2	13	1		7			43	6		5	2	1			16	49		
Dane, 2d dist.	11		7	6	56	5	6						26					10	6	7	12	39		
Dodge	44			3	123		10	5			6		53	15		7	63		6			49		
Door	2		8		27						6	14				10			11		19			

Text-books.

[illegible]

Text books.

TABLE NO. XI.—TEXT-BOOKS—Continued.

TABLE NO. XI.—TEXT-BOOKS — Continued.

COUNTIES.	SPELLING.										READING.												
	Barvey.	Independent.	McGuffey.	National.	Sanders.	Sanders's Union.	Swinton.	Harper.	Webb.	Webster.	Willson.	New American.	Appleton.	American Educational.	Sheldon.	Willson.	Harvey.	Independent.	McGuffey.	National.	Sanders.	Sanders's Union.	Webb's Model.
St. Croix	376	38	331	271	1,490	529	1,078	43	26	83	230	45	817	837	23	293	355	196	331	275	788	536	25
Sauk.....	27	1	2	14	66	8	34	2	...	...	10	...	54	4	...	...	...	...	...	...	...	...	...
Shawano .....	...	...	...	9	...	...	17	...	...	...	21	...	...	17	...	...	4	...	...	...	...	...	...
Sheboygan .....	...	...	2	...	77	11	6	1	...	...	3	...	...	9	...	...	10	...	...	...	...	...	...
Taylor	2	...	...	...	10	7	...	...	...	...	...	...	...	2	...	...	1	...	2	...	...	...	...
Trempealeau .....	...	...	...	10	...	...	34	...	...	27	...	...	33	30	...	4	...	...	...	...	...	...	...
Verion	17	4	46	5	2	12	44	...	...	...	...	...	9	33	...	1	...	2	44	...	...	...	...
Walworth	17	...	...	...	30	37	17	...	...	...	...	...	...	29	...	...	...	...	...	...	...	...	...
Washington	5	...	13	...	68	...	11	...	...	...	...	...	36	8	...	...	6	...	...	...	...	...	...
Waukesha .....	...	...	...	3	54	...	42	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wauwata .....	...	...	...	...	39	...	25	...	...	...	8	...	60	...	...	...	...	...	...	...	...	...	...
Waushara .....	...	3	...	...	13	51	9	...	...	7	...	...	20	15	...	...	...	...	...	...	...	...	...
Winnebago .....	...	...	6	...	...	41	25	...	...	...	...	...	68	15	...	...	...	...	...	...	...	...	...
Wood .....	...	...	...	8	...	...	28	...	...	...	...	...	...	33	...	...	8	...	...	...	...	...	...
Totals.....	376	38	331	271	1,490	529	1,078	43	26	83	230	45	817	837	23	293	355	196	331	275	788	536	25

Text-books.

TABLE NO. XI.—TEXT-BOOKS — Continued.

COUNTIES.	ARITHMETIC.						ALGEBRA.						GEOGRAPHY.									
	Davies.	French.	Quackenbos.	Ray.	Robinson.	Thompson.	White.	Davies.	Loomis.	Olney.	Ray.	Robinson.	Schuyler.	Cornell.	Eclectic.	Guyot.	Harp. r.	McNally.	Mitchell.	Montellth.	Swinton.	Appleton.
Adams.....	1	18	3	44	...	2	...	...	...	...	...	...	...	23	...	...	10	...	3	...	27	...
Ashland.....	...	...	...	4	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	3	...
Barron.....	2	19	...	26	...	...	7	...	...	...	...	...	...	2	4	...	18	...	...	9	24	...
Bayfield.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Brown.....	1	2	47	23	...	...	3	...	...	...	...	3	...	9	5	...	3	...	40	5	14	...
Buffalo.....	21	3	85	11	1	2	...	...	...	1	...	1	...	39	2	...	11	...	1	18	3	...
Burnett.....	2	3	...	...	...	...	...	...	...	...	...	...	...	1	...	...	2	...	...	...	2	...
Calumet.....	12	...	...	25	2	22	1	...	...	...	...	1	...	...	18	...	...	...	...	12	25	...
Chippewa.....	15	8	...	65	...	...	3	...	...	...	...	3	...	...	...	...	17	16	...	...	57	...
Clark.....	2	27	4	2	32	2	...	...	1	...	...	...	...	...	...	...	42	5	...	...	16	...
Columbia.....	...	9	...	106	12	11	1	...	...	...	...	14	...	...	18	...	57	...	25	12	19	...
Crawford.....	...	...	...	39	45	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dane, 1st dist....	4	...	31	30	39	11	2	1	...	...	...	3	...	34	2	1	26	9	5	12	22	...
Dare, 2d dist....	15	...	4	38	29	4	9	1	...	...	...	1	...	14	12	...	11	17	...	32	...	
Dodge.....	21	...	9	30	79	12	41	...	...	2	6	40	...	40	65	...	20	...	...	44	20	...
Door.....	...	2	...	10	29	...	...	...	...	...	...	...	...	11	...	1	7	...	5	13	8	...
Douglas.....	...	...	2	...	...	...	...	...	...	...	2	...	...	1	...	...	...	...	...	...	1	...
Dunn.....	11	17	...	13	32	...	...	...	...	...	...	5	...	12	1	2	22	...	...	10	29	...
Eau Claire.....	2	...	1	2	53	2	...	...	...	...	...	...	...	7	...	30	...	...	...	...	22	...
Fond du Lac.....	28	1	...	...	...	...	...	...	...	...	...	...	...	26	27	...	11	...	2	22	40	...
Grant.....	5	8	110	...	41	...	36	1	1	2	7	13	...	4	56	1	21	8	23	38	36	...
Green.....	...	2	2	49	63	...	8	...	1	...	...	3	...	17	9	...	48	...	...	...	51	...

Text-books.

TABLE NO. XI.—TEXT-BOOKS—Continued.

TABLE No. XI.--TEXT-BOOKS -- Continued.																							
COUNTIES.	ARITHMETIC.						ALGEBRA.						GEOGRAPHY.										
	Davis.	French.	Quackenbos.	Ray.	Robinson.	Thompson.	White.	Davis.	Loomis.	Olney.	Ray.	Robinson.	Schuyler.	Cornell.	Eclectic.	Guyot.	Harper.	McNally.	Mitchell.	Monteith.	Swinton.	Appleton.	
Green Lake.....	6	2	3	44	6	1	2	9	9	5	15	6	5	6	14
Iowa.....	.....	2	.....	52	53	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	.....	32	11	42	.....
Jackson.....	2	10	10	13	26	.....	1	.....	.....	.....	.....	3	.....	8	2	.....	16	1	.....	11	22	.....
Jefferson.....	15	8	21	4	18	1	10	2	.....	1	.....	2	.....	49	11	3	13	4	.....	11	4	12
Juneau.....	4	.....	.....	30	32	.....	.....	1	1	1	.....	.....	.....	7	.....	.....	.....	7	22	13	24	.....
Kenosha.....	8	1	.....	1	32	7	5	.....	.....	2	1	2	.....	.....	6	.....	27	.....	.....	9	10	.....
Kewaunee.....	.....	1	1	22	23	.....	1	.....	.....	.....	.....	1	.....	11	.....	.....	2	.....	23	.....	9	.....
La Crosse.....	8	.....	5	5	29	.....	15	3	.....	.....	.....	4	.....	15	13	3	.....	2	.....	25	14	.....
La Fayette.....	8	7	13	62	19	.....	6	.....	.....	1	.....	3	.....	.....	8	.....	31	5	3	23	20	.....
Langlade.....	.....	.....	.....	.....	8	.....	10	.....	.....	.....	.....	1	.....	.....	4	.....	5	.....	.....	3	.....	.....
Lincoln.....	1	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	1	.....	.....
Manitowoc.....	6	.....	.....	41	43	.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	8	10	24	10	35	.....
Marathon.....	49	22	.....	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	47	.....	.....	26	13	.....
Marquette.....	5	2	.....	.....	3	.....	.....	.....	.....	2	.....	1	1	1	1	1	8	.....	.....	5	7	.....
Milwaukee, 1st dist.....	.....	.....	.....	12	2	.....	.....	.....	.....	4	.....	2	.....	.....	2	.....	.....	3	.....	23	6	.....
Milwaukee, 2d dist.....	4	.....	.....	20	3	4	4	2	.....	.....	.....	1	.....	.....	.....	.....	7	1	2	10	7	.....
Monroe.....	5	2	13	15	15	1	29	2	.....	.....	.....	6	.....	6	24	1	12	22	10	14	26	.....
Oconto.....	.....	8	7	44	43	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	22	.....	3	.....	3	.....
Outagamie.....	.....	.....	6	.....	16	.....	5	.....	1	.....	3	.....	.....	7	1	.....	4	.....	.....	.....	5	.....
Ozaukee.....	12	.....	.....	19	26	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	3	6	10	.....	19	12	.....
Pepin.....	9	4	1	.....	20	.....	.....	1	.....	.....	.....	4	.....	3	1	1	4	.....	.....	10	16	.....

Text-books.

Pierce.....	89	1	1	8	1	15	14	57
Polk.....	19	1	1	1	12	6	11	16
Portage.....	9	4	7	1	12	29	4	3
Price.....	5	4	4	1	6	4	4	5
Racine.....	16	5	3	2	8	16	8	68
Richland.....	117	2	2	2	1	13	1	7
Rock 1st district..	38	1	41	8	23	41	5	7
Rock 2d district..	40	3	2	1	14	34	7	16
St. Croix.....	44	2	2	8	17	85	9	8
Sauk.....	73	33	4	7	83	5	7	15
Shawano.....	29	2	1	1	23	20	4	8
Sheboygan.....	57	1	1	7	1	18	20	34
Taylor.....	17	1	1	1	2	1	4	11
Trempealeau.....	33	2	1	2	28	4	11	25
Vernon.....	25	7	2	11	25	11	13	2
Walworth.....	83	4	1	16	17	13	23	32
Washington.....	16	7	6	1	18	16	4	41
Waukesha.....	32	19	2	12	45	8	7	5
Waupaca.....	46	10	2	5	1	5	43	11
Wausara.....	19	14	2	4	6	2	2	17
Winnebago.....	65	14	5	5	8	12	5	19
Wood.....	29	2	1	1	10	8	11	10
Totals.....	2,068	169	365	38	4	42	998	1,222
Totals.....	376	900	263	38	12	24	723	82

Text books.

Green Lake.	6	6	31	5	12	..	2	10	5	2	27	1	2	1
Iowa.	18	16	20	16	60	34	13	6	..	..	36	4	..	1
Jackson.	6	..	2	6	15	1	5	6	..	..	21	1	..	1
Jefferson.	4	11	5	32	15	6	4	28	1	1	7	10	1	1
Juniata.	10	..	28	4	17	..	42	5	5	..	5	..	2	1
Kenosha.	..	..	11	..	7	7	8	..	..	..	23	3	1	1
Keweenaw.	..	21	4	..	..	..	..	..	..	..	16	..	..	..
Lac Seul.	1	1	23	7	..	4	6	1	..	..	22	6	..	1
La Crosse.	9	19	11	2	12	7	..	..	..	..	22	..	..	1
La Fayette.	5	..	29	12	31	15	20	13	4	..	14	..	1	2
Lafayette.	2	2	..	..	1	..	4	..	..	..	..	6	..	..
Lagrange.	1	5	..	..	8	5	9	..	..	..	45	..	..	..
Lincoln.	1	13	54	..	..	8	9	..	6	..	..	..	1	1
Manitowoc.	..	..	..	..	21	2	7	11	..	6	25	..	..	..
Marathon.	5	87	1	..	2	..	..	..	..	..	..	..	..	..
Marquette.	1	..	5	..	2	1	..	..	1	..	..	..	..	1
Marquette.	..	3	7	..	9	..	2	5	9	..	4	..	..	..
Mil., 1st dist.	12	6	1	6	8	..	..	..	..	..	16	..	..	1
Mil., 2d dist.	1	16	1	5	8	1	1	..	2	..	8	..	1	1
Mnroe.	6	10	27	5	14	34	12	5	..	1	21	11	1	1
Oconto.	..	..	20	1	9	..	..	..	2	..	..	..	..	..
Ontonagon.	8	..	3	2	9	7	7	4	..	..	8	..	..	..
Ontonagon.	2	..	23	5	12	1	4	..	..	..	3	..	..	2
Ozaukee.	..	..	1	8	16	2	3	..	1	..	8	1	..	1
Pepin.	8	..	40	..	26	20	..	1	2	..	42	..	4	..
Pierce.	..	8	..	..	17	10	..	27	..	..	18	..	..	..
Polk.	2	1	7	10	18	2	5	1	13	19	5	3	1	..
Portage.	..	..	..	..	2	4	5	..	..	..	..	..	..	..
Price.	..	..	7	..	10	..	..	..	..	..	..	..	..	..
Racine.	8	21	4	12	4	2	4	6	..	..	14	5	..	..
Richland.	1	1	8	..	47	2	1	12	..	..	71	..	..	2
Rock, 1st dis.	6	5	9	1	25	7	12	6	9	1	..	18	3	1
Rock, 2d dis.	12	12	8	8	24	4	..	8	..	..	23	2	1	1
Sauk.	2	..	5	21	26	2	4	..	18	5	22	..	..	..
St. Croix.	..	..	37	5	38	3	32	4	..	4	49	23	1	2
Shawano.	8	..	41	..	..	..	..	..	..	..	52	..	..	..
Sheboygan.	2	..	23	..	25	..	..	..	..	..	..	..	..	..
Taylor.	4	..	48	..	19	12	15	..	1	..	44	..	1	1
Trempealeau.	1	6	15	22	20	..	10	16	2	..	10	..	2	2

Text books.

TABLE No. XI.—TEXT-BOOKS — Continued.

TABLE No. XI.—TEXT-BOOKS — Continued.																								
COUNTIES.	GRAMMAR.						UNITED STATES HISTORY.								PHYSIOLOGY.					GEOMETRY.				
	Clark.	Green.	Harvey.	Kerl.	Pineo.	Quackenbos.	Swinton.	Anderson.	Barnes.	Goodrich.	Quackenbos.	Scott.	Swinton.	Venable.	Brown.	Cutter.	Dalton.	Hitchcock.	Steele.	Davies.	Loomis.	Olney.	Robinson.	
Vernon.....	5	...	22	50	8	...	23	1	...	...	14	...	43	10	...	9	...	...	...	...	...	...	...
Walworth.....	...	...	15	43	...	4	27	...	18	7	7	...	33	8	5	5	...	...	...	...	...	2	3
Washington.....	14	...	1	15	7	20	13	9	2	17	20	...	15	...	...	1	...	...	...	...	...	...	...
Waukesha.....	8	...	4	31	2	36	17	...	...	4	31	...	53	2	1	4	2	...	...	...	3	...	...
Waupaca.....	...	...	...	23	...	7	45	...	...	8	1	...	24	...	...	...	...	...	...	...	...	...	4
Waushara.....	...	...	...	16	...	55	4	...	...	1	58	...	15	...	...	1	...	...	...	...	...	...	...
Winnebago.....	...	2	10	50	...	...	6	10	4	...	...	...	39	11	...	...	...	1	5	...	...	...	...
Wood.....	12	...	...	5	...	10	3	5	...	...	7	...	11	...	...	...	...	...	2	...	...	...	...
Totals ..	218	175	626	1,323	226	420	1,228	111	617	310	409	95	1,448	214	46	60	11	14	54	12	17	11	50	

Teachers' Institutes.

TABLE NO. XII.
TEACHERS' INSTITUTES.

COUNTIES.	WHERE HELD.	BY WHOM CONDUCTED.	WHEN HELD.
Adams	Friendship	A. J. Hutton	Oct. 3
Barron	Shetek	J. B. Thayer	Mar. 14
Brown	Depere	L. W. Briggs and Ed. McLaughlin ..	Aug. 8
Buffalo	Mondovi	J. B. Thayer	Sept. 26
Calumet	Chilton	Robert Graham	Sept. 12
Chippewa	Chippewa Falls	Hosea Barns	Aug. 15
Clark	Neillsville	A. J. Hutton	Oct. 17
Columbia	Portage	Albert Salisbury	Apr. 4
Columbia	Fall River	Albert Salisbury	Oct. 3
Columbia	Poynette	Albert Salisbury	Oct. 10
Crawford	Eastman	A. J. Hutton	Sept. 5
Dane, 1st dis. ..	Stoughton	A. J. Hutton	Mar. 23
Dane, 2d dis. ..	Middleton	A. J. Hutton	Mar. 28
Dodge	Horicon	J. Q. Emery and L. H. Clarke	Aug. 23
Dunn	Menomonie	Hosea Barns and C. A. Burlew	Aug. 29
Eau Claire	Eau Claire	J. B. Thayer	Mar. 28
Fond du Lac	Fond du Lac	Robert Graham	Apr. 4
Grant	Lancaster	A. J. Hutton	Aug. 8
Green	Juda	Albert Salisbury and A. F. North ..	Mar. 21
Green	Monroe	Albert Salisbury	Sept. 5
Iowa	Dodgeville	Geo. Beck and Jno. Kelley	Aug. 29
Jackson	Black Riv. Falls ..	J. B. Thayer	Aug. 29
Jefferson	Jefferson	C. F. Viebahn	Aug. 23
Juneau	New Lisbon	C. H. Nye and C. A. Burlew	Aug. 15
Kenosha	Salem	W. S. Johnson	Aug. 15
Kewaunee	Kewaunee	Robert Graham	Oct. 10
La Fayette	Darlington	A. J. Hutton	Aug. 23
Lincoln	Merrill	A. F. North	Sept. 19
Manitowoc	Manitowoc	Robert Graham and J. M. Rait	Aug. 15
Marathon	Colby	Robert Graham	Sept. 5
Marinette	Marinette	Edwin Auerswald	Aug. 29
Marquette	Westfield	A. J. Hutton	Sept. 19
Mil., 2d dis. ..	Wauwatosa	W. E. Anderson and E. R. Smith ..	Aug. 23
Monroe	Tomah	J. B. Thayer	July 25
Outagamie	Appleton	Ed. McLaughlin and R. H. Schmidt ..	Aug. 23
Pepin	Durand	J. H. Gould and W. E. Barker	Aug. 22
Polk	Osceola Mills	J. B. Thayer and Hosea Barns	Sept. 12
Portage	Amherst	Robert Graham	Mar. 21
Taylor	Medford	J. B. Thayer	Oct. 10
Racine	Burlington	W. S. Johnson and E. R. Smith	Aug. 1
Richland	Richland Cent'r ..	Geo. Beck and Jno. Kelley	Aug. 15
Rock, 1st dis. ..	Evansville	Albert Salisbury	Apr. 11
Rock, 2d dis. ..	Clinton	Albert Salisbury	Oct. 17
St. Croix	New Richmond	J. B. Thayer and J. T. McCleary	Apr. 4
Sauk	Reedsburg	L. W. Briggs and Jas. T. Lunn	Aug. 23
Shawano	Shawano	A. F. North	Aug. 29
Sheboygan	Sheboygan F'ls. ..	A. A. Miller and B. R. Grogan	Aug. 8
Trempealeau ..	Arcadia	J. B. Thayer	Aug. 15

Teachers' Institutes.

TEACHERS' INSTITUTES—Continued.

COUNTIES.	WHERE HELD.	BY WHOM CONDUCTED.	WHEN HELD.
Vernon.....	Ontario	A. J. Hutton... ..	Mar. 7
Vernon.....	Viroqua.....	Albert Salisbury.....	Sept. 19
Walworth ..	Delavan	Albert Salisbury.....	Aug. 22
Washington.	West Bend	A. R. Sprague and S. A. Hooper	Aug. 15
Waupaca ...	New London ..	A. A. Miller.....	Aug. 22
Wausara...	Wautoma	Robert Graham.....	Sept. 26
Winnebago.	Oshkosh	Robert Graham.....	Aug. 29
Wood	Centralia	J. B. Thayer.....	Oct. 17

*Teachers' Institutes — Special Reports.*TABLE No. XIII.
TEACHERS' INSTITUTES — SPECIAL REPORTS.

COUNTIES.	No. of schools in county, or superintendent district.	No. of teachers required to teach the schools in county.	No. ATTENDING INSTITUTE.		Number of days institute was in session.	Average daily attendance.	No. HOLDING CERTIFICATES.			Average age of members.	Average experience in months in teaching of those having taught.	Not having taught, but intending to teach.	Number having previously attended institutes.	NUMBER HAVING ATTENDED —					No. of evening lectures.
			Male.	Female.			Total.	First grade.	Second grade.					Third grade.					
Adams	66	68	10	62	72 9	59	1	1	50	20	18	16	53	3	1	4	64	1	
Barron	67	68	14	20	34 8	23	1	4	22	21.6	22	7	25	1	6	5	15	1	
Brown	86	97	13	58	71 10	...	1	8	36	...	...	...	52	7	...	4	15	1
Buffalo	81	88	8	27	35 7.5	24.5	...	4	23	19.5	11.4	9	20	...	...	1	3	27
Calumet	68	75	11	45	56 9	49	1	...	44	21	28.2	14	45	...	...	14	34	7
Chippewa	97	111	2	23	40 10	22.7	4	4	22	20.4	28	10	29	...	3	5	23	3	
Clark	81	88	10	21	31 5	27	2	5	16	20.8	17.8	8	20	...	3	2	23	3	
Columbia	146	164	17	95	112 4.5	99.4	2	2	67	21.1	21.6	39	80	5	3	3	67	30	
Columbia .....	...	...	3	20	23 5	16.2	1	3	18	23	18	1	14	2	...	2	12	6
Columbia .....	...	...	10	24	34 5	25.8	1	2	27	23.6	23	9	19	2	...	14	16	1
Crawford	93	92	23	53	75 10	57.5	4	20	36	21.2	2.5	21	47	1	7	8	26	33	
Dane, 1st district ..	126	135	12	63	75 4	53.3	11	8	37	21.8	23.1	23	46	10	28	3	26	8	
Dane, 2d district ..	120	133	23	63	86 10	57.5	4	8	34	22.2	16.5	43	37	12	8	3	50	13	
Dodge	190	219	25	75	100 5	87.1	5	20	65	22.6	27	12	76	19	6	18	39	18	
Dunn	103	112	9	49	53 10	39.2	4	6	43	20	23	8	110	...	1	10	35	12	
Eau Claire	73	103	8	77	85 5	63.6	6	8	56	21.7	24.6	...	72	2	7	8	63	5	

Teachers' Institutes — Special Reports.

TABLE NO. XIII.—TEACHERS' INSTITUTES — SPECIAL REPORTS — Continued.

COUNTIES.	No. of schools in county, or superintendent district.	No. of teachers required to teach the schools in county.	No. ATTENDING INSTITUTE.			Number of days institute was in session.	Average daily attendance.	No. HOLDING CERTIFICATES.			Average age of members.	Average experience in months in teaching of those having taught.	Not having taught, but intending to teach.	Number having previously attended institutes.	NUMBER HAVING ATTENDED —					No. of evening lectures.
			Male.	Female.	Total.			First grade.	Second grade.	Third grade.					Colleges and Universities.	Academies.	Normal Schools.	High Schools.	Common schools only.	
Fond du Lac.....	166	178	22	114	136	9	114	1	10	74	22.4	28	...	97	6	2	21	26	55	...
Grant.....	217	256	25	97	122	9.5	91.1	13	13	79	22.4	24.1	28	86	9	5	44	34	39	...
Green.....	136	157	17	89	106	7	78.6	1	2	55	18.8	22	65	54	3	...	2	71	30	...
Green Lake.....	...	...	22	61	83	10	76	1	7	53	20.5	27.4	23	54	3	3	2	50	23	1
Iowa.....	126	140	13	75	88	9	84	3	13	61	20	28	31	23	4	2	18	48	26	1
Jackson.....	76	87	1	37	38	9	27.2	3	4	23	20.7	25.6	7	31	1	2	4	23	8	...
Jefferson.....	132	156	20	68	88	5	67	7	14	52	22.5	28.3	17	71	9	5	10	47	12	...
Juneau.....	95	113	14	64	78	9	57	...	14	46	22.2	23.5	14	60	2	11	1	54	10	2
Kenosha.....	61	62	24	58	82	10	71	3	7	45	19.7	16	15	23	2	4	19	15	42	2
Keweenaw.....	54	55	14	11	25	5	20.7	1	4	16	20.7	19.3	2	50	1	2	4	13	3	...
La Fayette.....	128	145	21	59	80	10	54.5	6	9	51	21.5	25.5	23	40	1	2	13	52	12	...
Lincoln.....	8	15	3	13	16	5	9	...	3	7	19	24	7	1	1	...	1	4	1	...
Manitowoc.....	110	141	33	70	103	9	56.5	4	8	58	20.2	25	40	13	...	...	20	54	27	...
Marathon.....	98	102	5	20	25	5	...	1	1	23	21	12	...	3	...	...	1	21	...	...
Marquette.....	27	32	3	16	19	5	14.5	3	5	10	24.5	34.7	2	14	5	1	5	5	4	2
Marquette.....	59	63	6	59	65	10	50.8	...	12	38	20.1	18.2	26	46	...	...	4	14	47	...
Milwaukee, 2d district.	32	35	10	21	31	10	7.2	2	6	52	23.7	28	4	44	...	...	3	9	...	...
Monroe.....	127	144	...	62	62	9	46.2	2	1	52	19.4	13.4	10	...	...	...	2	40	19	...

Teachers' Institutes — Special Reports.

Outagamie	110	118	14	57	7110	...	2	3	56	22	...	10	29	13	...	8	36	14	...	
Pepin	43	39	30	30	8	5	27	4	21	23	6	7	30	3	5	6	22	3	2	
Polk	75	78	9	36	45	10	31	7	2	30	20	7	25	2	8	4	7	24	...	
Portage	86	88	9	46	55	9	36	1	4	29	19	22	40	1	2	6	9	37	...	
Price and Taylor	90	29	2	22	24	3	5	2	...	1	10	17	2	...	...	...	...	...	...
Racine	77	82	6	57	63	9	54	1	12	30	22	2	40	...	3	3	29	8	...	
Richland	123	129	16	86	102	9	63	10	9	55	2	33	70	5	6	5	52	34	...	
Rock, 1st district	83	93	10	63	73	9	50	3	4	41	18	19	57	4	13	7	30	19	...	
Rock, 2d district	86	98	15	38	53	9	30	6	7	25	23	4	32	13	3	6	25	5	...	
St. Croix	110	107	29	82	111	10	69	10	17	45	21	26	30	6	12	30	46	17	...	
Sauk	165	193	11	91	102	10	79	5	1	6	81	22	77	9	6	9	61	17	...	
Shawano	67	58	2	18	20	5	17	2	1	17	10	1	12	1	...	2	7	10	...	
Sheboygan	114	127	30	69	99	9	73	8	2	77	20	8	82	4	2	7	62	16	...	
Trempealeau	90	97	27	69	90	10	...	...	...	53	21	1	38	...	6	4	14	4	...
Vernon	166	150	30	31	61	10	48	...	11	26	18	23	27	1	4	1	10	45	...	
Walworth .....	...	...	...	...	71	9	41	3	3	8	22	18	49	2	3	1	27	38	...
Washington	126	160	10	53	63	9	40	5	2	9	40	23	29	4	5	20	31	2	...	
Waupaca	104	112	31	52	83	9	71	5	2	65	20	27	17	5	5	1	20	43	...	
Waushara	109	130	14	67	81	9	62	5	2	5	58	21	60	2	...	11	42	26	...	
Winnebago	99	99	12	67	69	6	...	...	...	20	20	22	19	53	2	1	8	59	...
Wood	108	113	19	62	81	4	56	5	3	73	22	24	21	54	5	...	32	6	...	
Wood	48	47	5	46	51	4	43	6	2	24	18	5	26	...	1	41	6	...	...
Totals and average's	5,085	5,588	778	2,969	3,757	444	av. 47	9	178	383	2,284	av. 20	9	av. 22	2	904	2,541	1,712	1,079	38

*School Children and Attendance.*TABLE No. XIV.
SCHOOL CHILDREN IN ATTENDANCE.

CITIES.	No. of male children over four and under twenty years of age.	No. of female children over four and under twenty years of age.	Whole No. of children over four and under twenty years of age in city.	No. of male children over four and under twenty years of age, who have attended public school during the year.	No. of female children over four and under twenty years of age, who have attended public school during the year.	Whole No. of children over four and under twenty years of age, who have attended public school during the year.	No. under four years, who have attended public school.	No. over twenty years, who have attended public school.	Total No. of different pupils who have attended public school during the year.	No. of days school has been taught by qualified teachers.	Percentage of enrollment on No. of children in the city.	Percentage of attendance on No. enrolled in public schools during the year.	Percentage of attendance of pupils while members of public schools.
Appleton.....	1,407	1,539	2,946	895	885	1,780	...	10	1,790	180	60	80	90
Beaver Dam.....	796	889	1,685	360	430	790	...	...	790	198	49	90	88
Beloit.....	791	776	1,567	506	543	1,049	10	...	1,066	200	68	70	92
Berlin.....	540	582	1,122	332	372	704	...	...	704	198	64	82	90
Columbus.....	367	390	757	255	348	603	...	...	609	190	87	94.5	99.5
Fond du Lac.....	2,486	2,969	5,455	1,110	1,081	2,191	...	...	2,191	200	40	60	93
Fort Howard.....	549	588	1,137	367	400	767	...	...	767	200	67.4	88.2	88.2
Grand Rapids.....	224	233	457	163	184	347	...	...	347	180	76	90	92
Green Bay.....	1,172	1,241	2,413	552	517	1,069	...	...	1,069	200	44.3	72	86
Hu son.....	342	365	707	210	275	485	...	...	486	180	68	56	89.3
Janesville.....	1,598	1,786	3,384	797	900	1,697	...	4	1,701	180	50	78	94.5
Kenosha.....	1,129	1,131	2,260	383	239	622	...	...	622	189	33	74.5	93
La Crosse.....	2,231	2,300	4,531	1,308	1,320	2,628	...	9	2,637	200	58	62	95
Madison.....	1,693	1,787	3,480	935	1,015	1,950	...	1	1,951	185	56	90	92

School Children and Attendance.

	577	626	1,203	174	8,326	403	403	2	17,309	403	200	33.5	71	.....
Menasha.....	19,881	20,215	40,096	8,981	8,326	17,307	403	.....	2	17,309	197	43	82	89
Milwaukee.....	570	614	1,184	302	304	606	.....	.....	2	608	180	52	72	91
Mineral Point.....	640	661	1,301	418	404	822	.....	.....	.....	822	187	63	65	.....
Neenah.....	756	709	1,465	478	489	962	.....	.....	.....	962	200	65.8	59	67
Oconto.....	2,165	3,215	6,184	1,133	1,151	2,284	.....	.....	8	2,287	195	43	91	88
Oshkosh.....	800	762	1,562	658	630	1,288	.....	.....	.....	1,296	200	83	55	82.8
Portage.....	506	541	1,047	257	250	487	.....	.....	.....	487	200	45.8	46.5	88
Prairie du Chien.....	3,014	3,222	6,236	1,290	1,158	2,338	.....	.....	.....	2,388	100	38	65	95
Racine.....	446	450	986	288	559	847	.....	.....	.....	847	180	66	77	82.4
Ripon.....	1,656	1,632	3,288	569	624	1,193	.....	.....	.....	1,193	200	36.3	56.7	87.3
Sheboygan.....	709	743	1,452	443	457	900	.....	.....	7	907	192	62	50	84.6
Stevens Point.....	1,748	1,714	3,462	567	517	1,084	.....	.....	.....	1,084	200	31	63	88.3
Watertown.....	773	713	1,486	451	417	868	.....	.....	.....	868	180	58.4	65	90
Wausau.....														
Totals and avs.....	50,366	52,543	102,909	24,117	24,004	48,121	10	60	48,191	5,391	av. 71.6	av. 55.3	av. 71.6	av. 89.1

Teachers, Salaries, Graded and Night Schools.

TABLE No. XV.
TEACHERS, SALARIES, GRADED AND NIGHT SCHOOLS.

CITIES.	TEACHERS, SALARIES.										GRADED SCHOOLS.						NIGHT SCHOOLS.		
	No. of male teachers required.	No. of female teachers required.	Whole number of teachers required.	No. of male teachers employed during year.	No. of female teachers employed during year.	Whole No. of teachers employed during year.	Highest salary paid to male teachers (per annum).	Average salary paid to male teachers (per annum).	Highest salary paid to female teachers (per annum).	Average salary paid to female teachers (per annum).	Average age of male teachers employed.	Average age of female teachers employed.	No. schools in city with four or more departments.	No. of schools with three departments.	No. of schools with two departments.	No. of mixed or ungraded schools.	No. of night schools.	No. of teachers employed in the same.	No. of pupils attending the same.
Appleton	8	21	29	7	21	29	\$1,400 00	\$700 00	\$500 00	\$400 00	28	29	4	2	1	1	..	..	..
Beaver Dam	1	11	12	1	11	12	1,200 00	1,200 00	500 00	333 00	38	28	2	2	4	..	..	..	..
Beloit	2	17	19	2	17	19	1,500 00	1,000 00	600 00	400 00	34	23	1	1	1	..	..	..	..
Berlin	2	12	14	2	12	14	1,100 00	800 00	400 00	275 00	26	28	2	..	..	1	..	..	..
Columbus	2	6	8	2	6	8	1,000 00	750 00	285 00	285 00	27	25	1	1	1	..	..	..	..
Fond du Lac	5	38	43	5	38	43	1,200 00	620 00	750 00	342 10	37	25	6	9	4	6	..	..	..
Fort Howard	2	11	13	2	11	13	750 00	675 00	350 00	272 72	43	24	2	1	1	1	..	..	..
Grand Rapids	1	5	6	1	5	6	1,000 00	1,000 00	360 00	351 00	26	28	1	..	..	..	..	..	..
Green Bay	1	17	18	1	19	20	1,500 00	1,500 00	600 00	423 50	25	25	2	..	2	1	..	..	..
Hudson	1	8	9	1	8	9	800 00	800 00	360 00	331 88	28	30	1	..	1	..	..	..	..
Janesville	1	35	36	1	40	41	1,500 00	1,500 00	585 00	334 85	47	25.7	6	..	..	..	..	..	..
Kenosha	3	13	16	3	13	16	1,200 00	700 00	450 00	380 00	26	24.5	2	2	..	..	..	..	..
La Crosse	7	35	42	7	35	44	1,800 00	1,021 42	600 00	406 25	36	26	5	5	3	3	1	2	80
Madison	6	30	36	6	30	36	2,000 00	907 60	555 00	444 0	23	23	5	1	..	..	..	..	..
Menasha	1	8	9	1	8	9	900 00	900 00	450 00	318 88	33	27	1	..	..	4	..	..	..
Milwaukee	60	201	261	60	207	267	2,000 00	961 00	1,200 00	645 00	..	..	21	..	5	..	13	592,030	..

Teachers, Salaries, Graded and Night Schools.

Mineral Point.....	4	7	11	4	7	11	1,600 00	813 00	360 00	360 00	34	30	.....
Neenah.....	1	14	13	1	14	15	1,100 00	1,100 00	550 00	318 22	40	25	.....
Oconto.....	2	7	10	3	7	10	700 00	535 33	350 00	305 00	26	23	.....
Oshkosh.....	8	46	54	8	46	54	1,750 00	791 66	450 00	332 60	33	27	.....
Portage.....	1	16	17	1	16	17	1,250 00	1,200 00	550 00	331 25	28	25	.....
Prairie du Chien.....	1	7	8	1	7	8	750 00	750 00	450 00	357 14	37	26	.....
Rene.....	6	40	46	6	40	46	2,000 00	1,100 00	700 00	280 00	51	25	.....
Ripon.....	2	12	14	2	12	14	900 00	775 00	260 00	213 00	30	26	.....
Shibogan.....	3	16	19	3	16	19	1,200 00	666 66	500 00	336 82	22	23	.....
Stevens Point.....	2	10	12	2	14	16	1,500 00	900 00	400 00	314 00	51	24	.....
Watertown.....	3	18	21	3	18	21	1,600 00	1,000 00	500 00	330 00	36	24	.....
Wausau.....	2	13	14	2	14	16	1,000 00	635 00	360 00	267 92	26	23	.....
Totals and avs..	138	674	82	138	694	835	\$2,000 00	\$902 82	\$1,200 00	\$348 72	91	25.8	682,925

22 — ST. SUPT.

School-houses, Sites, and Valuation.

CITIES.	No. public school-houses in the city.	No. school-houses yet required.	No. school-houses built during the year.	Whole No. pupils school-houses will accommodate.	No. of school-house sites owned by city.	No. sites containing only one lot.	No. sites containing more than one lot.	No. of sites suitably enclosed.	No. school-houses built of stone or brick.	Highest valuation of school-house and site.	Cash value of all public school-houses in the city.	Cash value of sites.	No. of school-houses in good condition.	No. of school-houses properly ventilated.	No. of school-houses with separate out-houses for both sexes.	No. of school-houses with out-houses in good condition.	No. of members of Board of Education.
Appleton.....	7	1	1	1,750	6	6	6	6	5	\$12,000 00	\$28,000 00	\$12,000 00	6	1	7	7	10
Beaver Dam.....	4	1	1	1,900	5	5	5	4	4	12,000 00	36,000 00	5,000 00	4	4	4	4	9
Beloit.....	3	1	1	1,589	3	3	3	2	3	20,000 00	35,000 00	65,000 00	3	3	3	3	6
Berlin.....	3	1	1	900	2	2	2	2	1	35,000 00	47,000 00	7,000 00	3	3	3	3	6
Columbus.....	2	1	1	420	2	1	1	2	1	6,000 00	5,000 00	3,000 00	2	2	2	2	3
Fond du Lac.....	19	7	7	2,800	17	15	15	17	2	50,000 00	98,700 00	22,000 00	19	4	19	19	38
Fort Howard.....	7	7	7	850	5	3	3	1	3	14,000 00	20,000 00	3,000 00	6	...	3	3	7
Grand Rapids.....	1	1	1	600	1	1	1	1	1	30,000 00	26,000 00	4,000 00	1	1	1	1	4
Green Bay.....	5	1	1	1,000	4	4	4	4	3	25,000 00	45,000 00	6,000 00	2	1	5	5	7
Hudson.....	3	2	2	447	3	3	3	2	3	8,000 00	12,000 00	3,000 00	...	...	3	3	4
Janesville.....	6	6	6	1,801	6	6	6	6	6	22,000 00	59,500 00	7,000 00	6	6	6	6	6
Kenosha.....	4	4	4	800	3	3	3	3	3	10,000 00	16,000 00	10,000 00	4	4	4	4	9
La Crosse.....	10	1	1	2,150	9	8	8	9	5	24,300 00	70,000 00	17,125 00	9	5	9	9	9
Madison.....	9	9	9	3,480	8	6	6	8	8	27,000 00	90,000 00	10,000 00	9	9	9	9	8
Menasha.....	5	5	5	3,420	4	4	4	3	4	5,000 00	7,500 00	2,500 00	5	...	5	5	9

School-houses, Sites, and Valuation.

Milwaukee	26	6	114,358	25	...	26	2	2	24	\$52,000 00	\$440,500 00	\$202,300 00	25	...	26	2	2	26	2
Mineral Point	2	...	900	2	...	2	2	2	2	10,000 00	15,000 00	4,000 00	2	2	2	2	2	26	2
Neeah	5	...	1,332	5	...	5	4	8	40,000 00	45,000 00	7,000 00	5	1	5	5	3	3	26	4
Oconto	5	1	800	5	...	5	5	1	5,500 00	7,000 00	1,600 00	4	4	4	5	5	5	26	4
Oshkosh	10	...	3,500	13	...	13	12	5	50,000 00	100,000 00	30,000 00	8	8	8	10	10	10	26	7
Portage	5	...	1,106	5	...	5	5	4	10,000 00	27,500 00	6,850 00	5	4	4	5	5	5	26	6
Prairie du Chien	5	...	700	5	2	3	3	3	15,000 00	20,000 00	1,500 00	4	5	4	5	4	4	26	5
Racine	8	1	2,550	7	...	7	7	7	15,000 00	55,000 00	20,000 00	8	8	8	8	8	8	26	6
Ripon	4	...	1,800	4	2	2	3	2	15,000 00	19,600 00	2,100 00	3	3	3	3	3	3	26	4
Sheboygan	6	1	1,050	3	...	3	3	3	7,000 00	12,000 00	3,000 00	3	3	3	5	6	6	26	3
Stevens Point	4	...	830	4	3	1	1	1	5,700 00	13,000 00	2,500 00	3	3	3	3	4	4	26	8
Watertown	5	...	1,200	5	...	5	5	3	10,000 00	23,000 00	12,000 00	5	5	5	5	5	5	26	7
Wausau	4	2	1,100	4	...	4	...	3	25,000 00	32,000 00	6,000 00	3	3	3	3	4	4	26	6
Totals	177	18	650,133	165	17	149	147	112	\$52,000 00	\$1,494,300 00	\$474,975 00	157	94	170	168	194			

School Rooms, Apparatus, Libraries, Kindergartens.

CITIES.	SCHOOL ROOMS AND APPARATUS.										LIBRARIES.				KINDERGARTENS.			
	Whole number of school rooms occupied.	Number sufficiently supplied with blackboards.	Whole number supplied with reading charts.	Whole number with a map of Wisconsin.	Whole number with a map of the United States.	Whole number supplied with illustrative charts in natural sciences.	Whole number supplied with a globe.	Whole number supplied with other apparatus.	Whole No. adequately supplied with apparatus.	Whole No. supplied with Webster's Unabridged Dictionary and globes.	Cash value of all apparatus, including maps and globes.	Total number volumes added during the year.	Total amount expended for library books during the year.	Whole number volumes in all the libraries.	Cash value of all the libraries.	Number of Kindergartens in the city.	Number of teachers employed.	No. of pupils that have attended during year.
Appleton	26	25	6	6	10	1	6	2	1	25	\$1,000 00	.....	.....	.....	.....	.....	.....	.....
Beaver Dam	12	12	4	8	8	.....	12	12	.....	12	500 00	100	.....	.....	.....	.....	.....	.....
Beloit	10	10	.....	3	5	2	.....	4	1	12	200 00	.....	.....	700	\$1,200 00	1	1	24
Berlin	14	14	.....	4	2	1	6	2	1	12	600 00	75	\$36 00	400	500 00	.....	.....	.....
Columbus	8	8	.....	2	.....	.....	.....	1	1	8	400 00	10	25 00	60	175 00	.....	.....	.....
Fond du Lac	43	43	6	3	7	.....	8	.....	.....	40	700 00	68	150 00	242	550 00	.....	.....	.....
Fort Howard	13	13	1	2	4	1	4	1	.....	5	200 00	.....	.....	18	50 00	.....	.....	.....
Grand Rapids	6	8	2	4	5	1	5	.....	.....	4	120 00	10	25 00	24	75 00	.....	.....	.....
Green Bay	15	15	.....	4	6	2	8	3	.....	13	800 00	.....	.....	100	25 00	.....	.....	.....
Hudson	8	8	.....	2	1	.....	.....	1	.....	.....	25 00	.....	.....	.....	.....	.....	.....	.....
Janesville	33	33	33	33	33	1	33	33	.....	33	.....	.....	.....	162	.....	.....	.....	.....
Kenosha	14	14	6	14	10	1	33	14	1	14	600 00	10	75 00	310	400 00	1	1	30
La Crosse	34	34	9	9	8	1	8	34	.....	27	1,200 00	21	150 00	91	850 00	2	2	100
Madison	27	27	27	27	27	1	4	27	27	27	1,500 00	.....	.....	.....	.....	1	1	45
Menasha	8	8	.....	2	1	.....	2	1	.....	8	200 00	2	.....	290	500 00	.....	.....	.....
Milwaukee	227	225	75	50	50	.....	50	50	50	175	2,800 00	.....	.....	.....	.....	1	1	75

School Rooms, Apparatus, Libraries, Kindergartens.

Mineral Point...	9	9	2	233	278	736	718	212	\$150 00	1	1	404
Nenah	13	13	8	1	5	1	5	13	350 00	1	1	25
Oconto	9	9	5	4	1	1	1	13	350 00	1	1	25
Oshkosh	59	50	35	7	7	7	7	7	2,500 00	1	1	8
Portage	17	17	8	2	3	11	6	7	400 00	1	1	8
Prairie du Chien.	8	8	4	4	1	4	8	8	200 00	1	1	8
Racine	45	46	10	7	1	6	13	14	700 00	1	1	8
Ripon	12	8	2	2	2	2	2	10	700 00	1	1	8
Sheboygan	19	19	5	6	1	5	2	8	300 00	1	1	8
Stevens Point ..	12	12	2	2	3	1	1	3	100 00	1	1	8
Watertown	21	21	21	8	21	10	1	21	1,500 00	1	1	40
Wausau	14	14	4	10	3	1	1	14	200 00	1	1	40
Totals	736	718	278	233	251	39	234	523	\$17,545 00	403	\$549 00	\$6,496 75

Text-books, Course of Study, and Teachers' Reports and Meetings.

TABLE No. XVIII.														
TEXT-BOOKS, COURSE OF STUDY, AND TEACHERS' REPORTS AND MEETINGS.														
CITIES.	TEXT-BOOKS.				COURSE OF STUDY.						TEACHERS' REPORTS AND MEETINGS.			
	Has a list of text-books been adopted?	Are these the only books used as regular text-books?	Are text-books purchased by the city?	Are they sold or loaned to pupils?	Has a course of study been adopted?	Into how many grades divided?	Through how many years extending?	Does any course include ancient languages?	Does it propose to fit pupils for college?	What per cent. finish the course of study?	Are reports required of teachers?	How often are these reports made?	Are teachers' meetings required?	How often are such meetings held?
Appleton.....	Yes...	Yes	No...	.....	Yes	1010	1010	Yes	Yes	4	Yes	Yearly..	Yes	Semi-monthly.
Beaver Dam....	Yes...	No...	No...	No...	Yes	1212	1212	Yes	Yes	6	Yes	Weekly.	Yes	Weekly.
Beloit	Yes...	Yes	No...	.....	Yes	1414	1414	Yes	Yes	...	Yes	Monthly.	Yes	Semi-monthly.
Berlin.....	Yes...	Yes	Yes	Loaned..	Yes	1313	1313	Yes	Yes	4	Yes	Monthly.	Yes	Semi-monthly.
Columbus.....	Yes...	Yes	No...	.....	Yes	1212	1212	Yes	Yes	11	Yes	Monthly.	Yes	Semi-monthly.
Fond du Lac...	Yes...	Yes	No...	.....	Yes	1212	1212	Yes	Yes	10	Yes	Monthly.	Yes	Semi-monthly.
Fort Howard...	Yes...	Yes	No...	.....	Yes	1111	1111	No...	No...	25	Yes	Monthly.	Yes	Monthly.
Grand Rapids ..	Yes...	No...	Yes	Sold	Yes	1111	1111	No...	Yes	10	Yes	Weekly.	Yes	Not regular.
Green Bay.....	Yes...	No...	No...	.....	Yes	1313	1313	Yes	Yes	2	Yes	Monthly.	Yes	Monthly.
Hudson	Yes...	Yes	No...	.....	Yes	1111	1111	No...	Yes	7	Yes	Monthly.	Yes	Semi-monthly.
Janesville	Yes...	Yes	No...	.....	Yes	1212	1212	Yes	No...	1	Yes	Weekly.	Yes	Weekly.
Kenosha	Yes...	No...	No...	No...	Yes	1313	1313	Yes	Yes	...	Yes	Monthly.	Yes	Semi-monthly.
La Crosse	Yes...	No...	Partly	Loaned..	Yes	1111	1111	Yes	Yes	19	Yes	.....	Yes	Weekly.
Madison	Yes...	No...	No...	Sold	Yes	1312 $\frac{1}{2}$	1312 $\frac{1}{2}$	Yes	Yes	11	Yes	Weekly.	Yes	Weekly.
Menasha.....	Partial	No...	No...	No...	Yes	1212	1212	Yes	Yes	10	Yes	Monthly.	No...	Occasionally.
Milwaukee	Yes...	Yes	Yes	Loaned..	Yes	8	8	Yes	Yes	4	Yes	Monthly.	Yes	Monthly.

TABLE NO. XVIII.
TEXT-BOOKS, COURSE OF STUDY, AND TEACHERS' REPORTS AND MEETINGS.

Text books, Course of Study, and Teachers' Reports and Meetings.

Mineral Point ..	Yes ..	No ..	Sold ..	Yes.	4	4	Yes.	2	Yes.	.....	Yes.	Semi-monthly.
Neeenah	Yes ..	Yes ..	.....	Yes.	212	No.	No.	1	Yes.	Monthly.	Yes.	Semi-monthly.
Oconto	Yes ..	Yes ..	.....	Yes.	410	No.	No.	30	Yes.	Monthly.	No.	.....
Oshkosh	Yes ..	Yes ..	.....	Yes.	7	Yes	No.	.....	Yes.	Monthly	Yes.	Monthly.
Portage	Yes ..	No ..	Loaned.	Yes.	611	Yes	Yes.	20	Yes.	Monthly.	Yes.	Monthly.
Prairie du Chien	Yes ..	Yes ..	.....	Yes.	310	No.	No.	20	Yes.	Monthly.	Yes.	Semi-monthly.
Racine	Yes ..	Yes ..	.....	Yes.	1212	Yes	No.	2	Yes.	Monthly.	Yes.	Semi-monthly.
Ripon	Yes ..	Yes ..	.....	Yes.	512	.....	.....	.....	Yes.	Monthly.	Yes.	Monthly.
Sheboygan	Yes ..	No ..	.....	Yes.	3	Yes	Yes.	10	Yes.	Monthly.	Yes.	Monthly.
Stevens Point ..	Yes ..	No ..	No ..	Yes.	1212	Yes	Yes.	.....	Yes.	Monthly.	Yes.	Weekly.
Watertown	Yes ..	Yes ..	Loaned.	Yes.	1010	Yes	Yes.	5	Yes.	Monthly.	Yes.	Semi-monthly.
Wausau	Partial	Yes ..	No ..	Yes.	1212	Yes.	Yes.	.....	Yes.	Monthly.	Yes.	Weekly.
Averages .....	.....	.....	.....	10	211.4	.....	.....	9.7	.....	.....	.....	.....

Private Schools not Incorporated.

[illegible]

*Financial Statistics — Receipts.*TABLE No. XX.
FINANCIAL STATISTICS — RECEIPTS.

CITIES.	Money on hand, Aug. 31, 1880.	From taxes levied for building and repair- ing.	From taxes levied for teachers' wages.	From taxes levied for apparatus and li- braries.	From taxes levied at annual meeting.	From taxes levied by county supervisors.	From income of State school fund.	From all other sources.	Total amount received during the year.
Appleton.....	\$7,200 98	\$1,787 00	\$12,355 00	\$204 00	\$1,722 54	\$1,080 71	\$1,104 78	\$202 50	\$26,657 51
Beaver Dam.....	1,651 18	.....	4,030 00	.....	2,000 00	679 20	679 20	378 25	9,987 83
Beloit.....	6,718 32	.....	.....	.....	.....	1,124 88	647 60	12,810 20	21,300 50
Berlin.....	2,750 02	.....	.....	.....	5,000 00	452 80	802 84	208 56	9,214 23
Columbus.....	738 11	.....	.....	.....	2,719 99	274 31	338 45	418 20	4,489 06
Fond du Lac.....	863 19	.....	.....	.....	20,790 00	2,360 00	2,275 03	1,422 15	27,710 37
Fort Howard.....	1,966 19	.....	.....	.....	5,005 00	465 20	477 66	.....	7,914 05
Grand Rapids.....	704 19	.....	.....	.....	2,800 00	182 71	176 00	1,123 00	4,985 90
Green Bay.....	4,326 12	.....	.....	.....	9,000 00	868 80	954 93	338 45	15,488 30
Hudson.....	1,852 78	.....	170 00	.....	4,127 77	250 40	281 37	.....	6,832 32
Janesville.....	16,042 55	.....	.....	.....	.....	2,271 22	1,405 19	350 00	20,068 96
Kenosha.....	746 08	.....	.....	.....	7,000 00	1,500 00	914 65	120 00	10,280 78
La Crosse.....	14,461 38	.....	.....	.....	28,700 00	1,671 60	2,027 50	154 75	47,045 48
Madison.....	7,015 26	.....	.....	.....	17,000 00	1,700 00	1,459 56	1,833 19	29,008 01
Menasha.....	859 97	.....	.....	.....	2,000 00	600 00	456 00	3,125 75	7,041 72
Milwaukee.....	100,086 20	.....	.....	.....	138,335 15	51,774 45	15,662 93	1,831 02	308,280 84
Mineral Point.....	3,433 30	.....	.....	.....	4,000 00	453 60	453 60	422 95	8,733 45
Neeah.....	2,539 50	1,638 00	.....	.....	9,409 49	700 00	502 80	761 45	15,543 24
Oconto.....	.....	.....	.....	.....	6,000 00	.....	514 00	.....	6,514 00
Oshkosh.....	7,267 95	.....	.....	.....	12,914 10	13,085 81	2,437 71	582 88	36,288 54

Financial Statistics — Receipts.

Portage	\$2,608 10	.....	.....	.....	.....	\$699 60	\$986 27	\$11,267 06	\$12,951 93
Prairie du Chien ..	3,230 67	\$2,000 00	.....	.....	.....	630 00	425 37	145 96	6,390 43
Racine	8,565 68	150 00	.....	.....	.....	2,200 00	2,431 07	743 40	33,603 14
Ripon	5,455 15	.....	.....	.....	.....	416 89	411 27	972 56	15,266 40
Sheboygan	2,143 97	.....	.....	.....	.....	1,185 20	1,275 30	372 45	15,888 10
Stevens Point	4,526 07	.....	.....	.....	.....	563 60	1,147 92	838 45	7,704 94
Watertown	2,029 76	2,500 00	.....	.....	.....	1,434 80	1,445 45	511 86	16,310 86
Wausau .....	.....	.....	.....	.....	.....	398 40	468 95	1,183 12	12,580 23
Totals	\$210,442 76	\$8,075 00	\$20,525 00	\$279 00	\$320,210 58	\$28,913 68	\$43,152 50	\$40,618 16	\$733,849 11

Financial Statistics — Expenditures.

CITIES.	For building and re- pairing.	For apparatus and li- braries.	For services of male teachers.	For services of female teachers.	For old indebted- ness.	For furniture, registers, and records.	For all other pur- poses.	Total amount paid out during the year.	Money on hand, August 31, 1881.
Appleton....	\$2,520 53	\$214 67	\$5,045 00	\$7,660 00	\$610 00	\$389 00	\$3,777 66	\$20,116 91	\$6,540 60
Beaver Dam..	818 98	.....	1,200 00	3,519 00	302 07	50 60	1,226 83	7,147 48	2,240 35
Beloit.....	.....	.....	2,000 00	6,800 00	2,593 00	.....	2,786 75	14,118 75	7,181 75
Berlin.....	.....	36 00	1,600 00	3,565 00	.....	.....	2,171 97	7,312 97	1,901 25
Columbus....	95 66	.....	1,500 00	1,710 00	.....	.....	419 76	3,725 44	763 62
Fond du Lac..	618 27	225 00	3,100 00	13,070 00	.....	351 83	7,666 74	25,081 84	2,678 53
Fort Howard..	183 57	100 00	1,470 00	2,939 75	.....	75 56	1,112 62	5,851 50	2,062 53
Grand Rapids.	88 12	36 45	1,000 00	1,615 00	.....	.....	688 65	3,509 36	1,476 54
Green Bay....	323 31	115 05	1,500 00	7,212 50	81 14	29 05	2,039 66	11,289 57	4,248 77
Hudson.....	109 30	.....	800 00	2,632 75	.....	.....	631 26	4,183 31	2,499 01
Janesville....	1,000 00	75 00	1,500 00	12,583 00	.....	1,500 00	1,454 36	18,112 36	1,956 60
Kenosha.....	1,000 00	75 00	2,100 00	4,900 00	.....	.....	2,063 14	9,244 14	1,036 60
La Crosse....	2,000 00	.....	8,150 00	14,793 62	.....	.....	9,404 78	34,348 40	12,097 08
Madison.....	1,212 25	88 15	3,970 00	12,165 80	.....	742 88	3,949 81	22,128 89	6,879 12
Menasha.....	390 21	.....	900 00	2,550 00	.....	58 72	3,719 74	4,618 67	2,423 05
Milwaukee....	.....	.....	57,660 00	113,287 15	.....	.....	45,246 23	216,193 38	92,096 46
Mineral Point.	466 66	574 97	2,190 00	1,890 00	.....	71 95	900 25	6,093 83	2,669 62
Neesah.....	601 67	45 63	1,100 00	4,450 00	5,630 00	392 27	1,360 86	13,580 49	1,962 75
Oconto.....	.....	.....	1,600 00	2,250 00	2,000 00	.....	450 00	6,300 30	214 00

TABLE No. XXI.
FINANCIAL STATISTICS — EXPENDITURES.

Financial Statistics — Expenditures.

Oshkosh	\$2,301 74	.....	\$5,450 00	\$15,250 00	.....	\$1,010 05	\$7,813 21	\$31,825 00	\$4,463 54
Portage	400 00	.....	1,200 00	5,210 00	.....	75 00	5,915 78	12,939 06	12 27
Pra. du Chien .....	.....	.....	1,750 00	2,500 00	.....	.....	1,285 15	4,535 15	1,854 28
Racine	3 461 99	.....	6,915 00	15,401 97	.....	1,103 83	3,079 46	29,981 75	3,643 89
Ripon	239 64	\$45 89	1,767 00	3,169 75	.....	1,791 61	992 52	8,005 91	7,260 49
Shenoygan	250 00	25 00	2,000 00	5,723 00	.....	75 00	2,372 01	10,443 01	5,440 09
Stevens Point	494 35	113 60	1,792 50	3,087 93	.....	202 76	784 58	6,475 74	1,229 20
Watertown	894 57	18 78	2,447 00	5,971 85	.....	753 05	1,681 67	11,756 92	4,553 94
Wausau	2,172 54	73 54	1,105 00	3,390 00	.....	350 68	2,586 74	9,673 50	2,931 73
Totals.....	\$20,733 41	\$1,862 29	\$121,811 50	\$279,371 09	\$11,294 09	\$0,053 34	\$114,629 22	\$560,698 33	\$184,697 20

Teachers' Certificates, Normal School Teachers, and Av. Experience.

TABLE NO. XXII.

TEACHERS' CERTIFICATES, NORMAL SCHOOL TEACHERS, AND AVERAGE EXPERIENCE.

CITIES.	No. of State certificates.	CERTIFICATES GRANTED.	Totals.	CERTIFICATES REFUSED.	Totals.	NORMAL SCHOOL TEACHERS.	No. of graduates of Normal Schools.	No. attended Normal Schools.	AVERAGE EXPERIENCE.		
		Male Teachers.		Female Teachers.					Average time in yrs. male teachers remain.	Average experience in yrs. of male teachers.	Average experience in years of female teachers.
		1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	1st Grade.	2d Grade.	3d Grade.	
Appleton.....	3	5	2	...	2	...	...	...	...	7	10
Beaver Dam.....	...	1	...	...	1	...	...	...	...	6	4
Beloit.....	2	...	...	...	2	...	...	...	...	4	3
Berlin.....	4	...	...	...	1	...	...	...	...	4	5
Columbus.....	1	1	...	...	7	...	...	...	...	4	4
Fond du Lac.....	...	2	...	...	8	...	...	...	...	4	5
Fort Howard.....	1	1	...	...	1	...	...	...	...	11	4
Grand Rapids.....	1	...	...	...	...	...	...	...	...	19	7
Green Bay.....	...	...	...	...	...	...	...	...	...	4	5
Hudson.....	2	...	...	...	1	...	...	...	...	6	7
Janesville.....	3	...	...	...	...	...	...	...	...	...	5
Kenosha.....	2	2	...	...	...	...	...	...	...	5	15
La Crosse.....	...	2	1	...	...	...	...	...	...	7	9
Madison.....	7	...	...	...	...	...	...	...	...	5	5

Teachers' Certificates, Normal School Teachers, and Av. Experience.

[illegible]

*Text-books.*TABLE No. XXIII.
TEXT-BOOKS.

CITIES.	Spelling.	Reading.	Mental Arithmetic.	Written Arithmetic.	Grammar.	Geography.
Appleton	.....Patter'n	Harvey	White	White	Harvey	Eclectic.
Beaver Dam...	Swint'n & Patter'n	Harvey	White	White & Robin'n	Swint'n & Harv'y	Eclectic.
Beloit	Swinton	Am. Ed. Series	Robinson	Robinson	Greene & Clark	Harper.
Berlin	Sanders's Union	Appleton	Olney	Olney	Heed & Kellogg	Harper.
Columbus	Sanders	Am. Ed. Series	Robinson	Robinson	Swinton	Monteith.
Fond du Lac	Independent	Independent	White	White	Harvey	Guyot.
Fort Howard	Sanders	Am. Ed. Series	Robinson	Robinson	Karl	Swinton.
Grand Rapids	Swinton	Appleton	.....	Davies	Harvey	Harper.
Green Bay	American	Am. Ed. Series	.....	Robinson	Whitney	Harper.
Hudson	Swinton	Appleton	Davies	Davies	Swinton	Swinton.
Janesville	Union	Union	White	Robinson	Swint'n & Greene	Warren.
Kenosha	Harvey	Harvey	White	White	Harvey	Eclectic.
La Crosse	Harvey	Harvey	White	White	Har, Reed & Kell.	Eclectic.
Madison	Monroe & Patter'n	Independent	Robinson	Robinson	Swinton	Eclectic.
Menasha	Eclectic	Harvey	Robinson	Robinson	Swinton	Eclectic.
Milwaukee	Swinton	Harvey	.....	Ray	Greene	Eclectic.
Mineral Point	Swinton	Appleton	.....	White	Harvey	Swint'n & Cornell.
Neenah	Swinton	Appleton	Robinson	Robinson	Swinton	Swinton.
Oconto	Patterson	Appleton	Robinson	Olney	Swinton	Harper.
Oshkosh	Swinton	Sanders	.....	Olney	Swinton	Eclectic.
Portage	Heukle	Harvey	Robinson	White	Harvey	Eclectic.
Prairie du Chien	National	Appleton	Robinson	Robinson	Karl & Swinton	Swinton.
Racine	Swinton	Appleton	Fish	Fish	Reed & Kellogg	Harper.
Ripon	Swint'n & Patter'n	Appleton	Olney	.....	Swi, Reed & Kell.	Harper & Swint'n.
Sheboygan	Swinton	Independent	.....	.....	Harvey	Harper.
Stevens Point...	Sanders's Union	Harv'y & Randall	Robinson	Fish	Swint'n & Whint'y	Colt, Harp, Corn.
Watertown	Swint'n & DeWoll	Apple'n & Stod'd	Robinson	Ray & Mod, K & B	Swint'n & Whint'y	Harper.
Wausau	Harvey	Harvey	Olney	Olney	Harvey	Harper.

Text-books.

TABLE No. XXIII.—TEXT BOOKS — Continued.

CITIES.	United States History.	Physiology.	Algebra.	Geometry.	Latin Grammar and Reader.	Natural Philosophy.
Appleton	Barnes	Cutter	Robinson	Robinson .....	.....	Norton.
Beaver Dam...	Venable	Hutchinson	Olney	Olney	Eclectic	Norton.
Beloit	Andrews	Cutter	Robinson	Robinson	Harkness	Cooley.
Berlin	Swinton	Hooker	Olney	Olney	Harkness	Cooley.
Columbus	Barnes	Hutchinson	Robinson	Robinson	Allen & Green'gh.	Steele.
Fond du Lac ..	Ridpath	Hutchinson	Olney	Olney	Allen & Green'gh.	Norton.
Fort Howard...	Swinton	Danas	Robinson	Evans .....	.....	Hooker.
Grand Rapids ..	Andrews	Cutter	Davies	Davies	Harkness	Steele.
Green Bay	Barnes	Hooker	Robinson	Robinson	Allen & Green'gh.	Norton.
Hudson	Barnes	Cutter	Davies	Loomis .....	.....	Norton.
Janesville	Barnes	Cutter	Robinson	Robinson	Andrews	Steele.
Kenosha	Barnes & Ve'ble.	Brown	Schuyler	Schuyler	Bartholomew ..	Norton.
La Crosse	Barnes	Hutchinson	Peck	Loomis	Harkness	Norton.
Madison	Barnes	Dalton	Robinson	Loomis	Allen	Norton.
Menasha	Barnes	Brown	Olney .....	.....	Harkness	Steele.
Milwaukee	Barnes	Cutter	Loomis	Loomis	Allen & Green'gh	Avery.
Mineral Point ..	Lossing	Huxley	Robinson	Robinson	Harkness	Norton.
Neeah	Swinton	Dalton	Robinson	Robinson .....	.....	Wills.
Oconto	Lossing	Steele	Olney	Olney .....	.....	Avery.
Oshkosh	Lossing	Hitchcock	Olney	Olney	Bart'ol & Bi'ham.	Norton.
Portage	Venable	Brown	Robinson	Robinson	Harkness	Norton.
Prairie du Chien	Barnes	Brown	Robinson .....	.....	.....	.....
Racine	Barnes	Huxley & Y'man	Loomis	Peck	Harkness	Avery.
Ripon	Anderson	Cutter	Olney	Brooks	Harkness	Norton.
Sheboygan	Swinton	Hutchinson	Olney	Olney	Harkness	Steele.
Stevens Point...	Barnes	Steele	Robinson	Loomis	Allen & Green'gh.	Avery.
Watertown	Swin. & Qua'bos	Appleton Sci. Pr	Robinson	Davies & Loomis	Smith	Appleton's Sci.
Wausau	Barnes	Hutchinson	Ficklin	Wentworth	Harkness	Avery.

Statistics of High Schools Aided by the State.

TABLE No. XXIV.
STATISTICS OF HIGH SCHOOLS AIDED BY THE STATE.

LOCATION.	NAME OF PRINCIPAL.	Year when the school was established as a free high school.	Number of male teachers.	Number of female teachers.	Number of male pupils not over twenty years of age.	Number of female pupils not over twenty years of age.	Whole number not over twenty years.	Number registered over twenty years of age.	Whole number of pupils registered.	Average daily attendance.	Number of days of high school.	Number of pupils in common branches only.	Number of pupils in algebra or geometry.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Almond	T. S. Chipman.....	1878	1	....	10	5	15	2	17	16	80	7	10
Appleton	R. H. Schmidt.....	1876	3	2	69	62	131	6	137	104	171	49	73
Avoca	R. J. Porter.....	1876	1	2	16	24	40	....	40	29	179	23	14
Baraboo	W. A. Willis	1877	1	1	22	33	55	10	65	40	173	....	42
Beloit	William H. Beach.	1869	2	2	39	78	117	7	124	96	200	7	86
Berlin	Chas. M. Gates	1878	1	2	34	66	100	....	100	60	198	43	22
Bloomer	C. A. Burlew	1880	1	....	10	18	28	....	28	....	180	20	8
Brandon	Kirk Spoor.....	1877	1	....	18	40	58	1	59	40	198	32	27
Brodhead	E. A. Charlton.....	1877	1	....	23	51	74	2	76	43	173	37	22
Burlington	Edwin R. Smith	1877	1	1	34	48	82	....	82	49	200	33	38
Chippewa Falls	F. P. Secor.....	1877	1	1	10	7	17	....	17	....	180	2	15
Clinton	S. B. Lewis.....	1880	1	....	20	26	46	....	46	32	180	....	18
Darlington	Dwight Kinney.....	1876	1	1	31	57	88	5	93	57	200	22	71
Delavan	Elias Dewey.	1877	1	1	21	67	88	....	88	40	180	14	31

Statistics of High Schools Aided by the State.

Depere	1879	1	1	17	31	48	1	49	33	180	17	12
Durand	1876	1	1	26	26	53	6	58	23	190	40	12
Eau Claire, W. side.	1877	1	1	40	15	55	5	60	33	180	23	38
Elkhorn	1876	1	1	34	24	58	...	58	36	180	31	11
Evansville	1878	1	1	30	37	67	7	74	41	178	15	81
Fennimore	1881	1	1	12	13	24	4	28	20	117	16	10
Fond du Lac	1877	1	3	36	72	108	...	108	76	200	92	92
Fort Atkinson	1877	2	2	50	72	122	9	131	105	174	75	50
Geneva	1877	1	1	23	43	65	...	65	21	180	14	14
Glenbeulah	1878	1	...	19	29	48	...	48	27	180	34	14
Grand Rapids	1875	1	1	17	25	42	...	42	30	180	18	13
Green Bay	1879	1	2	14	35	49	...	49	42	200	35	35
Hazel Green	1876	1	...	17	25	42	...	42	29	192	21	18
Highland	1879	2	2	8	10	18	7	25	29	180	17	3
Hillsborough	1876	1	1	17	18	35	4	39	15	180	18	10
Horicon	1877	1	1	39	41	80	...	80	46	200	59	21
Humbird	1881	1	1	7	16	23	2	25	24	100	...	...
Janesville	1878	1	1	45	94	139	4	143	95	180	...	75
Kenosha	1876	2	1	32	41	73	...	73	69	188	34	19
La Crosse	1877	3	2	37	68	105	7	112	88	197	...	90
Lake Mills	1877	1	1	21	29	50	...	50	29	180	25	11
Madison	1876	6	6	94	160	251	1	255	92	185	137	110
Marinette	1877	1	1	9	18	27	1	28	17	200	...	14
Mausonton	1876	1	1	53	36	89	...	89	...	178	...	...
Mayville	1876	2	2	29	27	56	1	57	28	200	45	12
Mazomanie	1876	1	1	33	31	64	2	66	48	176	22	31
Middleton	1878	1	1	25	15	40	3	47	26	137	37	10
Monroe	1878	2	1	62	73	141	3	144	82	180	50	30
Montello	1877	1	...	26	30	56	...	56	37	160	37	15
Mount Hope	1877	1	1	21	19	40	8	48	39	77	44	4
Muscoda	1877	1	1	36	35	71	1	72	30	180	61	10
Necedah	1877	1	1	23	43	66	1	67	39	160	66	17
Neenah	1875	1	1	12	33	45	4	49	27	180	37	8
Nellsville	1877	1	1	16	21	37	...	37	26	200	23	14
Oconto	1880	1	1	45	51	96	2	98	50	180	63	31
Omro	1876	1	1	45	51	96	2	98	50	180	63	31
Oregon	1879	2	...	31	33	64	3	67	52	80	34	17

Statistics of High S

Spring Green.....	1878	1	1	28	36	64	4	68	60	174	.....	.....	.....
Stevens Point.....	1876	1	1	31	63	94	5	99	44	200	.....	59	37
Sturgeon Bay.....	1878	1	1	17	30	47	.....	47	33	180	.....	25	5
Tomah.....	1867	1	1	.....	.....	.....	.....	.....	.....	194	.....	30	19
Two Rivers.....	1877	1	1	.....	.....	.....	.....	.....	.....	200	.....	36	12
Unity.....	1880	1	1	29	25	54	.....	54	83	10	.....	15	23
Viroqua.....	1875	1	1	18	20	38	.....	88	36	170	.....	15	18
Waupun, Dodge Co.	1877	1	1	20	20	40	1	41	28	190	.....	18	2
Waupun, F. du L. Co.	1878	1	1	20	23	43	.....	43	19	188	.....	22	4
Wauwatosa.....	1877	1	1	8	26	34	.....	34	23	180	.....	28	11
West Depere.....	1878	1	1	19	19	38	1	39	32	180	.....	7	25
Wonevot.....	1876	1	1	3	29	32	.....	32	26	180	.....	8	16
Wonevot.....	1876	1	1	14	17	31	1	32	27	180	.....	8	16
Totals and av..		95	82	2,060	2,835	4,922	171	5,393	av. 45.5	13,729	1,892	1,800	

Statistics of High Schools Aided by the State.

TABLE NO. XXIV.—STATISTICS OF HIGH SCHOOLS AIDED BY THE STATE—Continued.

LOCATION.	1	15	16	17	18	19	20	21	22	23	24	25	26	27
		Number of pupils in natural sciences, including physical geography and physiology.	Number of pupils in modern languages.	Number of pupils in ancient languages.	Average age of pupils on entering the high school.	Average age of pupils at leaving the high school.	Number of male graduates past year.	Number of female graduates past year.	Total number of male graduates.	Total number of female graduates.	Salary paid to principal.	Whole amount paid for instruction.	Amount received for tuition.	Amount of aid received from the State.
Almond	9	46	23	17	17	17	5	5	17	16	\$200 00	\$200 00	\$21 00	\$77 26
Appleton	100	5	13	17	17	17	5	1	17	8	1,400 00	3,285 00	185 50	386 29
Avoca	35	12	20	15	18	18	5	5	4	3	630 00	630 00	88 00	243 86
Baraboo	35	28	81	14	19	19	5	21	49	127	883 33	1,288 33	140 00	386 29
Beloit	69	31	14	14	18	18	1	1	44	74	1,500 00	3,160 00	524 50	386 29
Berlin	35	6	14	14	18	18	4	4	7	10	1,100 00	1,750 00	117 00	386 29
Bloomer	26	11	14	14	17	17	4	5	7	10	6 00	600 00	256 90	231 78
Brandon	32	5	14	14	17	17	1	1	5	7	700 00	700 00	256 90	270 40
Brodhead	40	11	14	14	17	17	4	4	7	10	900 00	1,350 00	88 10	386 29
Burlington	17	39	26	14	17	17	1	1	7	28	1,000 00	1,350 00	88 10	386 29
Chippewa Falls	46	11	14	14	17	17	4	4	7	28	750 00	975 00	44 00	376 63
Clinton	71	13	15	15	17	17	4	4	14	25	700 00	700 00	44 00	376 63
Darlington	59	19	15	15	17	17	2	8	18	45	165 00	1,406 25	175 00	386 29
Delavan	18	3	14	14	18	18	3	3	18	45	1,075 00	1,435 00	105 53	386 29
Depere	6	14	14	14	18	18	3	3	18	45	800 00	958 00	15 00	370 07
Durand	6	14	14	14	17	17	3	3	18	45	600 00	600 00	40 00	231 78

Statistics of High Schools Aided by the State.

Eau Claire, west side.	17	13	16	19	4	6	17	\$1,500 00	\$2,100 00	.....	\$240 00	\$386 29
Elkhorn.....	17	.....	14	18	5	.....	.....	1,800 00	1,160 00	.....	321 67	386 29
Evacsville.....	42	16	30	18	4	8	13	2,000 00	1,360 00	.....	80 00	125 55
Fennimore.....	8	.....	16	.....	.....	.....	.....	325 00	325 00	.....	105 00	386 29
Fond du Lac.....	92	30	15	19	2	7	184	1,200 00	3,050 00	.....	559 20	386 29
Fort Atkinson.....	50	37	14	19	4	7	52	1,500 00	2,164 16	.....	103 73	386 29
Geneva.....	43	.....	15	18	.....	.....	1	1,900 00	1,365 00	.....	24 00	191 21
Glenbeulah.....	13	.....	13	.....	.....	.....	.....	495 00	495 00	.....	55 00	386 29
Grand Rapids.....	15	2	3	17	.....	2	2	1,000 00	1,100 00	.....	.....	386 29
Green Bay.....	28	7	29	18	2	6	29	1,500 00	2,550 00	.....	19 00	208 59
Hazel Green.....	18	1	.....	18	2	.....	12	540 00	540 00	.....	.....	193 15
Highland.....	5	.....	14	.....	.....	.....	.....	500 00	500 00	.....	37 00	208 59
Hillsborough.....	11	.....	13	17	.....	.....	.....	540 00	540 00	.....	225 00	386 29
Horicon.....	21	4	.....	17	1	2	6	900 00	1,250 00	.....	.....	90 77
Humbird.....	7	.....	13	.....	.....	.....	.....	235 00	235 00	.....	.....	386 29
Janesville.....	80	85	15	18	6	10	102	500 00	2,040 00	.....	135 00	386 29
Kenosha.....	11	16	6	18	1	4	.....	1,200 00	2,150 00	.....	120 00	386 29
La Crosse.....	70	39	49	18	2	7	26	1,440 00	3,700 00	.....	50 50	386 29
Lake Mills.....	14	2	16	19	.....	8	10	850 00	900 00	.....	157 50	347 66
Madison.....	235	85	127	18	6	13	75	2,000 00	5,226 47	.....	1,150 00	386 29
Marquette.....	27	14	14	.....	.....	1	4	1,000 00	1,400 00	.....	.....	386 29
Mauston.....	.....	.....	.....	.....	.....	.....	.....	850 00	970 00	.....	102 00	374 70
Mayville.....	12	31	.....	16	.....	.....	.....	800 00	900 00	.....	43 00	347 66
Mazomanie.....	42	20	14	17	1	3	15	800 00	1,120 00	.....	191 73	386 29
Middleton.....	10	13	.....	17	3	.....	3	420 00	420 00	.....	18 00	163 24
Monroe.....	33	13	61	17	2	4	30	1,100 00	2,000 00	.....	175 00	386 29
Montello.....	30	2	2	19	2	2	4	500 00	560 00	.....	5 20	216 32
Mount Hope.....	.....	.....	.....	.....	.....	.....	.....	220 00	220 00	.....	77 82	84 98
Muscoda.....	10	.....	11	15	.....	.....	1	540 00	735 00	.....	2 40	283 92
Necedah.....	35	16	3	18	.....	4	6	800 00	1,120 00	.....	4 00	386 29
Neillsville.....	10	.....	15	.....	.....	.....	.....	900 00	900 00	.....	112 00	347 66
Oconto.....	14	.....	13	.....	1	1	.....	700 00	700 00	.....	.....	270 49
Omro.....	35	.....	14	18	.....	5	30	675 00	990 00	.....	40 00	382 43
Oregon.....	19	3	5	19	5	4	4	240 00	360 00	.....	73 00	139 07
Oshkosh.....	.....	.....	15	18	4	4	146	1,750 00	3,550 00	.....	.....	386 29
Plymouth.....	38	.....	16	17	7	.....	1	900 00	900 00	.....	303 79	347 66

Statistics of High Schools Aided by the State.

TABLE No. XXIV.—STATISTICS OF HIGH SCHOOLS AIDED BY THE STATE—Continued.

LOCATION.	Number of pupils in natural sciences, including physical geography and physiology.										Number of pupils in modern languages.		Number of pupils in ancient languages.		Average age of pupils on entering the high school.		Average age of pupils at leaving the high school.		Number of male graduates past year.		Number of female graduates past year.		Total number of male graduates.		Total number of female graduates.		Salary paid to principal. ^e		Whole amount paid for instruction.		Amount received for tuition.		Amount of aid received from the State.	
	15	16	17	18	19	20	21	22	23	24	25	26	27																					
1																																		
Portage	108	15	8	15	18	6	9	21	27	\$1,200 00	\$1,750 00	\$172 40	\$386 29																					
Port Andrew	10	1	1	16	16	...	...	...	...	315 00	455 00	25 50	175 77																	
Racine	117	22	75	15	18	3	10	68	178	2,000 00	3,750 00	384 75	386 29																					
Reedsburg	21	11	13	14	19	6	...	6	...	1,000 00	1,360 00	195 75	386 29																					
Ripon, 1st ward .....	...	...	...	...	...	...	...	2	4	540 00	760 50	21 40	293 77														
Ripon, 2d ward	19	...	8	14	18	...	3	3	8	900 00	1,260 00	190 75	386 29																					
Sauk City	13	55	...	10	16	...	4	...	8	800 00	800 00	66 53	309 03																					
Sextonville	18	...	...	16	19	2	3	3	4	420 00	420 00	151 61	162 25																			
Sharon	9	...	...	16	...	...	...	...	...	585 00	361 25	30 00	139 58														
Shawano	15	...	...	14	18	3	1	3	1	850 00	850 00	...	328 35																			
Sheboygan	16	36	22	14	17	1	2	2	10	1,200 00	1,700 00	20 00	386 29																					
Sheboygan Falls	24	...	14	15	18	7	6	18	23	800 00	1,250 00	80 00	386 29																					
Shullsburg	28	...	21	14	18	...	...	2	11	90 00	1,250 00	94 80	386 29																			
Sparta	103	33	43	17	17	...	7	14	30	1,200 00	2,150 00	...	386 29																					
Spring Green .....	...	...	...	17	...	4	4	10	12	1,100 00	1,370 00	361 50	386 29																		
Stevens Point	40	...	21	14	17	4	5	4	5	1,100 00	1,588 00	...	386 29																					

Statistics of High Schools Not Aided by the State.

TABLE No. XXV.
STATISTICS OF HIGH SCHOOLS NOT AIDED BY THE STATE.

LOCATION.	NAME OF PRINCIPAL.	Year when the school was established as a high school.	Number of male teachers.	Number of female teachers.	Number of male pupils not over twenty years of age.	Number of female pupils not over twenty years of age.	Whole number not over twenty years.	Number registered over twenty years of age.	Whole number of pupils registered.	Average daily attendance.	Number of days of high school.	Number of pupils in common branches only.	Number of pupils in algebra or geometry.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Augusta.....	T. E. Williams.....	1870	1	...	13	17	30	1	31	25	176	10	21
Bay View.....	Lewis Funk.....	1873	1	1	33	44	77	...	77	60	200	58	19
Beaver Dam.....	T. B. Pray.....	1875	1	1	35	48	83	3	86	60	198	25	30
Black River Falls..	A. R. Sprague.....	1877	1	1	20	43	63	2	65	28	180	22	14
Boscobel.....	S. R. Willoughby..	1875	1	1	32	35	67	1	68	54	200	26	42
Chilton.....	J. E. Lince.....	1875	2	...	22	23	45	...	45	27	200	30	7
Columbus.....	G. M. Bowen.....	1876	1	...	40	52	92	5	97	67	190	60	55
Eau Claire, East side	H. C. Howland.....	1870	1	1	28	32	60	...	60	48	180	6	27
Fort Howard.....	Werden Reynold..	...	1	1	17	30	47	...	47	45	200	20	25
Fox Lake.....	John Kelley.....	1858	1	...	27	33	60	1	61	25	161	49	11
Hudson.....	R. B. Dudgeon.....	1874	1	1	20	24	44	1	45	27	180	18	26
Jefferson.....	Amos Squire.....	1880	1	1	37	37	74	...	74	...	200	57	15
Kewaunee.....	M. McMahon.....	1873	1	...	25	13	38	...	38	34	200	31	4
Kilbourn City.....	A. A. Drown.....	1875	1	5	21	51	72	...	72	46	176	55	32

Statistics of High Schools Not Aided by the State.

Lancaster.....	1876	1	1	1	26	35	61	1	62	45	175	53	8
Lodi.....	1875	1	1	1	48	41	89	2	91	48	178	34	49
Lone Rock.....	1875	1	1	1	8	17	25	...	25	16	119	25	6
Manitowoc.....	1873	1	2	...	37	52	89	3	31	92	198	19	70
Menasha.....	1877	1	1	1	39	13	52	...	52	41	198	36	8
Menomonie.....	1877	1	1	2	36	49	85	5	90	50	180	30	29
Millwaukee.....	1868	6	3	118	190	308	6	315	262	197	165	218	218
Mineral Point.....	1875	2	1	24	43	67	2	69	56	180	45	24	...
Neeenab.....	1876	1	2	17	65	82	82	82	76	190	32	22	22
New Lisbon.....	1876	1	1	20	43	63	3	66	40	176	37	18	...
New Richmond.....	1879	1	1	27	38	65	6	71	28	176	63	9	...
Oconomowoc.....	1879	1	...	20	35	55	2	57	35	108	...	10	...
Pepin.....	1875	1	1	20	16	36	6	42	30	180	20	19	...
Pewaukee.....	1874	1	...	35	31	66	1	67	44	100	59	9	...
Port Washington.....	1876	1	...	16	11	27	2	29	25	194	32	6	...
Richland Center.....	1876	1	1	23	38	69	9	70	46	180	68	10	...
Stockbridge.....	1875	1	...	33	22	55	3	58	28	160	58	...	...
Stoughton.....	1875	1	1	30	34	64	...	64	37	175	18	12	...
Watertown.....	1876	2	1	30	42	72	...	72	43	200	20	52	...
Waukesha.....	1873	1	2	27	63	90	1	91	67	185	68	23	...
Wausau.....	1876	1	2	45	48	93	4	97	80	176	68	25	...
Wausau.....	1876	1	1	29	32	61	...	61	29	177	17	25	...
Wauzeka.....	1872	1	...	35	23	58	1	59	27	171	55	4	...
West Bend.....	1870	1	...	34	21	55	...	55	29	193	42	4	...
West Salem.....	1875	1	3	92	91	183	3	186	116	180	151	18	...
Totals and av....	48	38	1,234	1,571	2,822	74	2,809	av. 50.1	7,077	1,674	1,005	...	...

Statistics of High Schools Not Aided by the State.

TABLE No. XXV.—STATISTICS OF HIGH SCHOOLS NOT AIDED BY THE STATE — Continued.

LOCATION.	1												26	
	Number of pupils in natural sciences, including physical geography and physiology.	Number of pupils in modern languages.	Number of pupils in ancient languages.	Average age of pupils on entering the high school.	Average age of pupils at leaving high school.	Number of male graduates past year.	Number of female graduates past year.	Total number of male graduates.	Total number of female graduates.	Salary paid to principal.	Whole amount paid for instruction.	Amount received for tuition.		
1	15	16	17	18	19	20	21	22	23	24	25	26		
Augusta.....	21	...	...	14	17	2	4	3	5	\$1 500 00	\$1,500 00	\$204 06
Bay View.....	36	40	...	13	17	1	4	3	12	1,200 00	1,650 00	...		
Beaver Dam.....	35	20	15	16	18	2	2	14	33	1,200 00	1,200 00	21 75		
Black River Falls.....	9	7	6	...	18	2	2	20	30	1,350 00	1,890 00	135 63		
Boscobel.....	42	...	6	15	18	1	5	5	13	900 00	1,300 00	60 75		
Chilton.....	15	41	4	13	16	...	...	5	4	800 00	900 00	253 60
Columbus.....	68	...	7	15	18	2	2	20	24	1,000 00	1,250 00	150 00		
Eau Claire, east side.....	27	12	15	14	18	3	6	18	23	1,550 00	2,000 00	50 00		
Fort Howard.....	27	...	...	14	18	2	10	4	12	750 00	1,100 00	...
Fox Lake.....	6	19	...	13	20	...	...	...	...	600 60	600 00	...
Hudson.....	25	...	...	14	16	...	3	...	3	800 00	1,160 00	...
Jefferson.....	17	...	...	15	...	2	1	2	1	725 00	1,025 00	...
Kewaunee.....	7	...	...	12	16	1	4	4	5	750 00	750 00	72 00
Kilbourn City.....	30	...	17	13	17	...	...	...	...	800 00	2,105 00	33 00
Lancaster.....	...	...	...	15	...	...	...	...	...	800 00	1,100 00	18 00
Lodi.....	36	...	16	14	17	1	3	19	26	750 00	1,090 00	238 00		

Statistics of High Schools Not Aided by the State.

	2	13	15	19	5	5	450 00	450 00	\$5 00
Lone Rock	70	10	14	17	10	17	2,350 00	1,400 00	151 00
Manitowoc	8	10	13	17	8	17	1,350 00	900 00	50 00
Menasha	35	45	17	18	8	3	1,400 00	1,400 00	151 25
Menomonee	266	173	162	18	59	63	2,345 00	2,000 00	220 00
Milwaukee	24	16	7	19	7	10	10,400 00	1,200 00	.....
Mineral Point ..	40	13	13	18	7	20	1,560 00	1,100 00	.....
Neenah	21	10	14	18	2	6	1,750 00	1,000 00	62 00
New Lisbon	16	4	14	18	.....	.....	1,270 00	800 00	150 00
New Richmond ..	28	.....	.....	.....	.....	.....	750 00	750 00	.....
Oconomowoc ..	18	.....	14	17	.....	.....	675 00	675 00	42 00
Pepin	13	.....	.....	.....	.....	.....	325 00	325 00	.....
Pewaukee	8	20	14	18	6	3	1,200 00	1,200 00	115 00
Port Washington ..	15	.....	13	.....	5	2	750 00	675 00	240 00
Richland Center ..	20	.....	.....	.....	.....	.....	480 00	480 00	38 00
Stockbridge	24	.....	13	16	.....	.....	800 00	800 00	28 70
Stoughton	52	60	13	16	46	34	1,512 50	1,600 00	26 80
Watertown	80	.....	14	18	1	11	2,040 00	1,200 00	365 00
Waukesha	27	.....	13	19	4	13	1,328 00	800 00	134 00
Waupaca	23	4	3	16	3	13	1,360 00	1,000 00	6 00
Wausau	4	.....	14	.....	.....	.....	540 00	540 00	.....
Wauzeka ..	11	.....	4	.....	.....	.....	700 00	700 00	195 50
West Bend	24	.....	15	.....	.....	.....	1,850 00	720 00	236 00
West Salem ..	.....	6	14	17	1	7	.....	.....	.....
Totals and averages	1,227	525	343	av. 13.9 av. 17.8	77	302	\$38,190 00	\$56,460 50	\$3,453 87

*Colleges and Universities.**TABLE No. XXVI.
COLLEGES AND UNIVERSITIES.

INSTITUTION.	Location.	President of Board of Trustees.	President of Faculty.	Year of foundation.	Religious Denomina- tion.	No. of Instructors.
1	2	3	4	5	6	7
Beloit College	Beloit	Aaron L. Chapin...	Aaron L. Chapin...	1847	Cong'l and Presbyterian	11
Carroll College	Waukesha	Vernon Tichenor...	Geo. H. Read	1846	Presbyterian	1
College of the Sacred Heart..	Prairie du Chien	William Becker	William Becker	1865	Roman Catholic	8
Galesville University	Galesville	J. C. Caldwell	J. W. McLaury	1855	Presbyterian	12
Lawrence University	Appleton	Philetus Sawyer	E. D. Huntley	1847	Methodist Episcopal	11
Milton College	Milton	W. C. Whitford	T. R. Williams	1867	Seventh-day Baptist	7
Milwaukee College	Milwaukee	M. P. Jewett	Chas. S. Farrar	1851	Undenominational	13
Mission House School	Franklin	H. A. Muehlmeier	H. A. Muehlmeier	1862	German Reformed	8
Northwestern University	Watertown	Augustus F. Ernst	Augustus F. Ernst	1864	Evangelical Lutheran	6
Pio Nono College	St. Francis	William Neu	William Neu	1871	Roman Catholic	6
Racine College	Racine	J. C. Talbot	Stevens Parker	1853	Protestant Episcopal	6
Ripon College	Ripon	E. H. Merrell	E. H. Merrell	1864	Cong'l and Presbyterian	12
St. Laurence College	Mt. Calvary	Peter Ernsdorf	Agidius Halsband	1863	Roman Catholic	11
University of Sacred Heart..	Watertown	J. O'Keffe	J. O'Keffe	1872	Roman Catholic	10
University of Wisconsin	Madison	Geo. H. Paul	John Bascom	1848	State Institution	38
Wayland University	Beaver Dam	C. B. Beebe	Nathan E. Wood	1855	Baptist	8
Wisconsin Female College..	Fox Lake	T. S. Johnson	Sarah O. Sheppard	1855	Congregational	5
					Total	173

Colleges and Universities.

TABLE No. XXVI.—COLLEGES AND UNIVERSITIES—Continued.

[illegible]

Colleges and Universities.

TABLE No. XXVI.—COLLEGES AND UNIVERSITIES—Continued.

INSTITUTION.	No. of weeks in scholastic year.	No. of volumes in college library.	No. volumes added during year.	No. of volumes in society libraries.	No. of scholarships used the past year.	No. of acres occupied by site.	No. acres owned, not including site.	Cash value of site.	Cash value of acres owned, not including site.	Cash value of buildings.	Cash value of apparatus, cabinets, and furniture.	Amount of endowment and other funds.	Amount of contributions the past year.	Amount of income from endowment and other funds.
1	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Beloit College.....	39	10,500	554	1,100	24	24	927	\$15,000	\$6,000	\$60,000	\$10,000	\$162,782 00	\$29,857	\$12,885 00
Carroll College.....	38	1,000	.....	.....	.....	14	.....	20,000	.....	10,000	1,000	2,000 00	.....	150 00
Coll. of Sacred Heart.....	43	1,000	200	300	.....	2	5	200	500	10,000	500	.....	.....	.....
Galesville University.....	40	4,000	200	.....	5	40	300	4,000	10,000	2,000	2,000	4,000 00	8,500	4,000 00
Lawrence University.....	38	9,170	449	.....	.....	21	2,800	50,000	7,700	56,000	8,800	51,355 00	6,831	8,590 00
Milton College.....	39	1,200	.....	700	.....	2 $\frac{1}{2}$	100	2,000	1,000	20,000	5,000	7,000 00	6,288	504 80
Milwaukee College.....	40	.....	.....	64	.....	.....	.....	30,000	.....	50,000	10,000	.....	500	.....
Mission House School.....	38	2,432	211	.....	.....	90	.....	10,000	8,000	9,000	1,700	5,000 00	4,000	200 00
Northwestern Univ'ty.....	40	1,500	100	.....	10	28	.....	3,000	.....	50,000	1,000	.....	14,800	.....
Pio Nono College.....	42	.....	.....	.....	.....	10	.....	10,000	.....	35,000	.....	.....	.....	.....
Racine College.....	38	7,000	100	.....	.....	14	70	100,000	.....	50,000	7,000	.....	.....	.....
Ripon College.....	39	5,150	150	450	60	10	.....	10,000	.....	60,000	2,000	100,000 00	20,000	8,137 35
St. Laurence College.....	42	560	.....	480	.....	6	.....	1,400	.....	40,000	.....	.....	.....	.....
Univ'ty Sacred Heart.....	42	3,400	199	.....	.....	3	60	50,000	33,000	300,000	750	504,036 67	.....	.....
Univ'ty of Wisconsin.....	38	10,803	517	.....	10,235	27,469	27,469	4,500	400	16,000	50,000	19,286 08	.....	30,169 38
Wayland University.....	39	1,650	.....	.....	.....	20	120	4,500	.....	.....	1,225	10,546 00	.....	.....
Wis. Female College.....	38	1,050	175	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	60	414,285	3,094	109,519 $\frac{7}{10}$	31,851	31,851	31,851	\$310,100	\$66,600	\$778,000	\$100,975	\$860,055 75	\$85,776	\$64,636 43

Colleges and Universities.

TABLE No. XXVI.—COLLEGES AND UNIVERSITIES—Continued.

INSTITUTION.	35	36	37	38	39	40	41	42	43	44
	Amount of income from tuition and incidental fees.	Whole amount of income.	Tuition in collegiate department for year.	Tuition in preparatory department for year.	Cost of board and lodging per year.	Amount paid for instruction the past year.	Amount paid for building and repairs the past year.	Amount paid for incidental expenses the past year.	Whole amount of expenses the past year.	Date of next commencement.
1										
Beloit College.....	\$4,191 00	\$17,076 00	\$36	\$26	\$200 00	\$14,900 00	\$1,992 00	\$2,403 00	\$19,295 00	June 28, '82
Carroll College.....	.....	.....	.....	25	175 00	.....	.....	.....	.....	June 24, '82
Co'ge of the Sacred Heart.....	.....	.....	.....	33	.....	.....	.....	.....	.....	Sept. 6, '82
Galesville University	1,500 00	5,500 00	40	33	175 00	7,037 00	4,000 00	1,824 16	16,940 16	June 29, '82
Lawrence University.....	1,439 00	16,940 16	161½	101½	84 50	2,750 00	.....	437 57	3,187 57	June 28, '82
Milton College.....	1,912 21	8,705 01	33½	27	240 00	20,000 00	500 00	200 00	20,700 00	June 12, '82
Milwaukee College .....	.....	.....	60	50	80 00	.....	200 00	600 00	5,643 00	June 28, '82
Mission House School	600 00	800 00	32¾	32¾	100 00	5,650 00	500 00	.....	6,150 00	June 28, '82
Northwestern University	1,600 00	16,400 00	40	40	140 00	.....	.....	.....	.....	Sept. 5, '82
Pio Nono College.....	.....	.....	.....	.....	300 00	.....	.....	.....	.....	June 23, '82
Racine College.....	2,737 57	47,000 00	100	100	115 00	8,104 79	.....	2,770 03	10,874 82	June 29, '82
Ripon College.....	.....	10,874 82	24	21	.....	.....	41,400 00	346 06	41,746 06	Sept. 9, '82
St. Laurence College.....	.....	.....	130	130	.....	200 00	.....	.....	.....	June 27, '82
University of Sacred Heart .....	.....	82,669 81	.....	.....	133 00	47,998 00	5,371 60	24,849 70	78,219 30	June 21, '82
University of Wisconsin	4,915 00	.....	.....	26	100 00	.....	.....	.....	8,511 18	June 32, '82
Wayland University.....	.....	3,476 58	.....	28	122 00	.....	.....	.....	.....	June 14, '82
Wisconsin Female College .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals	\$18,894 78	\$209,442 38	.....	.....	.....	\$106,639 79	\$53,993 60	\$33,430 46	\$206,267 03	.....

*Theological Seminaries.*TABLE NO. XXVII.
THEOLOGICAL SEMINARIES.

INSTITUTION.	Location.	President of Faculty.	Year of foundation.	Religious Denomination.	No. of instructors.	No. of students in regular classes.	No. of students in preparatory classes.	Whole No. of students past year.	No. of graduates at last commencement.	Whole No. of graduates since foundation.	No. of years in theological course.	No. of years in preparatory course.	No. of weeks in scholastic year.	No. of volumes in library.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Lutheran Seminary..	Madison ..	F. A. Schmidt ..	1876	Nor. Ev. Lutheran.	3	43	...	43	13	28	3	...	40	500
Mission House School	Franklin ..	H. A. Muehlmeier	1862	German Reformed.	3	14	9	23	...	...	3	1	38	2,432
Nashota House.....	Nashota. .	A. P. Cole.....	1842	Prot. Episcopal....	4	12	...	12	3	212	3	...	39	7,500
St. Francis Seminary.	St. Francis.	A. Zeiningcr.....	1856	Roman Catholic...	11	107	99	206	32	350	3	6	43	4,000
				Totals... ..	21	176	108	284	48	580	...	...	...	14,432

Theological Seminaries.

TABLE No. XXVII.—THEOLOGICAL SEMINARIES — Continued.

INSTITUTION.	Number of volumes added during the year.		Number acres of land occupied by site.		Number acres land owned, not including site.		Cash value of site.		Cash value of buildings.		Amount of endowment and other funds.		Amount of contributions the past year.		Income from endowment and other funds.		Whole amount of income the past year.		Tuition in regular department for the year.		Tuition in preparatory department for the year.		Cost of board and lodging for the year.		Amount paid for instruction the past year.		Amount paid for building and repairs the past year.		Amount paid for incidental expenses the past year.		Date of next commencement.	
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31															
Lutheran Semin'y	50	3	.....	\$2,000	\$15,000	.....	\$3,000	.....	\$3,000	.....	.....	.....	\$80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sept. 6, '82
Mission House Sc	211	30	.....	.....	9,000	\$5,000	4,000	\$200	450	.....	.....	.....	80	.....	\$200	\$600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jun. 28, '82
Nashota House ..	20	40	400	.....	120,000	52,671	11,133	3,150	11,133	Free.	.....	.....	Free.	.....	.....	256	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Jun. 29, '82
St. Francis Sem..	60	2	158	400	60,000	.....	.....	.....	.....	\$150	\$150	.....	.....	.....	4,400	5,060	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sept. 5, '82
Totals.....	341	135	558	\$2,400	\$204,000	\$57,671	\$18,133	\$3,300	\$14,583	.....	.....	.....	.....	.....	\$9,000	\$1,500	\$5,915	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Academies.*TABLE NO. XXVIII.
ACADEMIES.

INSTITUTION.	Location.	President of Board of Trustees.	Principal.	Year of foundation.	Religious Denomination.	Number of instructors.
1	2	3	4	5	6	7
Big Foot Academy	Waltham	O. U. Whitford ..	F. O. Burdick	1857	Seventh-day Baptist..	2
Evansville Seminary	Evansville	Isaac M. Bennett..	J. Emory Coleman..	1855	Free Methodist	3
German and English Acad'my	Milwaukee	Henry Mann, Jr. .	Gustav Eisefeldt... .	1851	Undenominational... .	13
Kemper Hall	Pleasant Prairie ..	Sister Edith	Lucien C. Saucé ...	1872	Protestant Episcopal..	6
Lake Geneva Seminary	Geneva	John W. Boyd	Julia A. Warner ...	1869	Undenominational... .	11
Markham Academy	Milwaukee .....	.....	Albert Markham ..	1864	Undenominational... .	4
Merrille Seminary	Fond du Lac .....	.....	Ida C. V. Martin... .	1866	Undenominational... .	3
Monona Academy	Madison .....	.....	J. J. Anderson	1877	Nor. Evan. Lutheran..	2
National German Seminary	Milwaukee	Halle Steensland..	I. Keller	1878	Undenominational... .	8
Oconomowoc Seminary	Oconomowoc	Albert Klamroth..	Grace P. Jones	1856	Protestant Episcopal..	5
Racine Academy	Racine .....	.....	Jno. G. McMynn... .	1875	Undenominational... .	5
Rochester Seminary	Rochester	M. G. Pett	A. E. Schaub	1867	Free Will Baptist... .	3
St. Catharine's Fem. Acad'my	Racine	St. M. Hyacintha..	St. Hyacintha	1874	Roman Catholic	11
St. Clara's Academy	Sinsinawa Mound ..	M. Emilie	M. Emilie	1852	Roman Catholic	11
St. Mary's Institute	Prairie du Chien... .	St. M. Seraphia... .	St. M. Seraphia... .	1872	Roman Catholic	12
St. Mary's Convent	Milwaukee	St. Mary Ernesta..	St. Mary Ernesta..	1850	Undenominational... .	10
The Home School	Racine .....	.....	Mary S. McMurphy	1877	.....	.....
					Total	98

Academies.

TABLE No. XXVIII — ACADEMIES — Continued.

Institution.	No. of students in academic classes		No. of students not in regular classes.		No. of students in preparatory classes.		Whole No. of students the past year		No. of students who graduated the past year.		No. of graduates since foundation.		No. of students in English course.		No. of students in classical course.		No. of students in modern languages.		No. of students in natural sciences.		No. of students preparing to enter college.		No. of years in academic course.		No. of weeks in school.		No. of volumes in academic library.		No. of volumes added the past year.		No. of volumes in society libraries.		No. of scholarships used the past year.		No. of acres of land occupied by site.		No. acres of land owned, not including site.		
	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.	Male.	Fem.			
1	8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		
Big Foot Academy.....	33	28					61						61											39															
Evansville Seminary.....	8		35	18	53	8	61						1	5									8	39															
German and Eng. Acad.....	59	59			90	50	258	3	9				258										42	500															
Kemper Hall.....	18		9		13		40		1				21	12									4	36															
Lake Geneva Seminary.....	8	27	1	2	20	16	93					11											4	38															
Markham Academy.....	50				28		78	5	70				38	40									4	40															
Merrille Seminary.....	22		7		16		45						40										8	39															
Monona Academy.....	30	40					70						70										8	40															
Nat. German Seminary.....	18	22					40	2	1		2	1	40										3	40															
Oconomowoc Seminary.....	32		5				87	2	2			80											3	40															
Racine Academy.....	4	2	64	12			82	3	5		27	19											3	40															
Rochester Seminary.....			53	38			90	3	7		7												4	38															
St. Catharine's Fe. Ac.....	85				25		110		4			6											4	44															
St. Clara's Academy.....	70		25				95	5			60												4	46															
St. Mary's Institute.....	83		44				127	7			29												4	40															
St. Mary's Convent.....	180		93				275	3			15	183	48	120	40								4	46															
The Home School.....	24		2		21		65		4			9											4	40															
Totals.....	2107	700	132	254	151	152	1,628	15	38	106	187	712	123	655	429							42																	

TABLE No. XXVIII.—ACADEMIES—Continued.

INSTITUTION.	Academies.					
	27	28	29	30	31	32
	Cash value of site.	Cash value of land owned, not including site.	Cash value of buildings.	Cash value of apparatus and cabinets.	Amount of endowment and other funds.	Income from tuition and incidental fees.
1	27	28	29	30	31	32
						Whole amount of income the past year.
Big Foot Academy.....	\$300 00	.....	\$2,200 00	\$25 00	.....	\$550 00
Evansville Seminary.....	1,000 00	.....	10,000 00	.....	.....	2,250 00
German and English Academy ..	25,000 00	.....	25,000 00	.....	.....	11,000 00
Kemper Hall.....	25,000 00	.....	50,000 00	2,000 00	.....	.....
Lake Geneva Seminary.....	7,000 00	.....	48,000 00	1,000 00	.....	.....
Markham Academy.....	8,000 00	.....	8,000 00	1,000 00	.....	3,643 00
Merrille Seminary.....	.....	.....	.....	.....	.....	.....
Monona Academy.....	.....	.....	.....	.....	.....	.....
National German Seminary ..	.....	\$100 00	.....	.....	\$45,000 00	.....
Oconomowoc Seminary.....	.....	.....	.....	.....	.....	4,000 00
Racine Academy.....	2,000 00	.....	8,000 00	.....	.....	5,400 00
Rochester Seminary.....	150 00	.....	5,000 00	.....	.....	5,700 00
St. Catharine's Female Academy ..	11,000 00	4,000 00	15,000 00	300 00	.....	988 00
St. Clara's Academy.....	.....	15,000 00	80,000 00	750 00	.....	16,694 68
St. Mary's Institute.....	.....	.....	.....	.....	.....	.....
St. Mary's Convent.....	.....	.....	.....	.....	.....	.....
The Home School.....	.....	.....	.....	.....	.....	.....
Totals.....	\$79,450 00	\$19,100 00	\$241,200 00	\$7,075 00	\$45,000 00	\$30,649 50
						\$49,805 68

Academies.

TABLE No. XXVIII.—ACADEMIES—Continued.

INSTITUTION.	1						Date of next closing exercises.
	34	35	36	37	38	39	
	Tuition and incidental fees for the year.	Cost of board and lodging for the year.	Amount paid for instruction the past year.	Amount paid for building and repairs the past year.	Amount paid for incidental expenses the past year.	Whole amount of expenses the past year.	
							40
Big Foot Academy.....	\$21 00	\$78 00	\$500 00	\$25 00	.....	.....	March 24, '82
Evansville Seminary.....	30 00	80 00	695 00	3,500 00	\$100 00	\$4,295 00	June 14, '82
German and English Academy.....	.....	120 00	.....	2,000 00	.....	.....	July 3, '82
Kemper Hall.....	150 00	150 00	3,600 00	200 00	.....	12,000 00	June 24, '82
Lake Geneva Seminary.....	32 00	300 00	1,350 00	.....	.....	3,643 00	June 22, '82
Markham Academy.....	120 00	.....	.....	.....	.....	.....	June 24, '82
Merrille Seminary.....	.....	.....	.....	.....	.....	.....	June 30, '82
Monona Academy.....	30 00	80 00	1,300 00	.....	150 00	1,450 00	June 30, '82
National German Seminary.....	.....	120 00	.....	.....	.....	.....	July 3, '82
Oconomowoc Seminary.....	50 00	250 00	.....	.....	.....	.....	June 20, '82
Racine Academy.....	100 00	240 00	3,100 00	250 00	300 00	3,650 00	June 24, '82
Rochester Seminary.....	24 00	101 00	.....	73 00	70 20	143 20	June 16, '82
St. Catharine's Female Academy.....	.....	140 00	.....	1,500 00	.....	18,000 00	July 6, '82
St. Clara's Academy.....	.....	165 00	.....	.....	.....	.....	July 6, '82
St. Mary's Institute.....	.....	150 00	.....	.....	.....	.....	July 6, '82
St. Mary's Convent.....	40 00	.....	.....	.....	.....	.....	June 29, '82
The Home School.....	100 00	300 00	.....	.....	.....	.....	July 4, '82
Totals.....	.....	.....	\$10,535 00	\$7,548 00	\$620 20	\$43,181 20	June 27, '82

Distribution of Dictionaries.

TABLE No. XXX.
DISTRIBUTION OF DICTIONARIES.

Statement showing the counties, towns, and districts, which have been supplied with dictionaries during the year ending December 10, 1881.

COUNTIES.	TOWNS.	Depart- ments.	No. of district.	No. of copies.
Ashland.....	Butternut.....	.....	2	1
Barron.....	Maple Grove.....	.....	6	1
	Prairie Farm.....	.....	9	1
	Stanfield and Rice Lake.....	.....	2	1
	Turtle Lake.....	.....	2	1
Brown.....	Ashwaubenon.....	.....	1	1
	Scott.....	.....	2	1
Buffalo.....	Naples.....	.....	9, 11	2
Calumet.....	Brillion.....	.....	6	1
Chippewa...	Auburn.....	.....	11	1
	Bloomer..	.....	12	1
	Bloomer.....	1	4	1
	Eagle Point.....	.....	20	1
	Edson.....	.....	8	1
	Sigel.....	.....	11, 12	2
Columbia....	Lodi.....	.....	1	1
Dane.....	Middleton, Town H. S.....	1	.....	1
	Springdale and Primrose..	.....	8	1
	Windsor.....	.....	4	1
Dodge.....	Beaver Dam city.....	1	.....	1
Door.....	Brussels.....	.....	3	1
	Nasewaupee.....	.....	6	1
Dunn.....	Sand Cr'k, Sheridan, Dallas, Bar'n Co.....	.....	1	1
	Sheridan.....	.....	7	1
	Weston.....	.....	5, 6	2
Eau Claire....	Brunswick.....	.....	4	1
	Eau Claire city.....	5	.....	5
	Lincoln.....	.....	2	1
	Seymour.....	.....	4	1
Fond du Lac.	Ripon, and Nepeuskun, Winneb'o Co...	.....	1, 7	1
Grant.....	Cassville.....	.....	6	1
	Glen Haven... ..	1	4	1
	Glen Haven.....	.....	3	1
	Potosi.....	1	6	1
Jackson.....	Albion and Springfield....	.....	10	1
	Northfield.....	.....	9, 4	2
	Springfield.....	.....	8	1
Jefferson.....	Aztalan.....	.....	7	1
	Ixonia, & Oconomowoc, Wauk'a Co.....	.....	7	1
	Sumner, and Albion, Dane Co.....	.....	1	1
Juneau.....	Kingston.....	.....	2	1
	Necedah.....	.....	5, 6	2
Kenosha.....	Randall.....	.....	3	1
Kewaunee....	Ahnapee.....	.....	6	1
LaFayette....	Darlington and Willow Springs...	.....	11	1
	Fayette.....	.....	7	1

Distribution of Dictionaries.

TABLE No. XXX.—DISTRIBUTION OF DICTIONARIES—Continued.

COUNTIES.	TOWNS.	Depart- ments.	No. of districts.	No. of copies.
Langlade.....	Norwood	1	2	1
	Polar	1	2 to 5	4
	Rolling	1	4	1
Lincoln	Merrill	2	1	2
Manitowoc ...	Two Creeks.....	1	1	1
	Two Rivers.....	1	1	1
Marathon	Bergen	1	5	1
	Brighton	1	5, 7	2
	Brighton and Unity	1	8	1
	Hamburg	1	4	1
	Hamburg and Rib Falls	1	2	1
	Hull	1	4	1
	Hull and Colby, Clark county	1	2	1
	Masinee	1	9	1
	Rib Falls.....	1	4	1
	Rietbrock.....	1	9	1
	Wausau city	6	.....	6
	Wausau and Easton	1	8	1
	Wein	1	3, 4	2
	Weston	1	6	1
Marquette	Newton	1	3	1
Monroe	Tomah	4	1	4
Oconto	Gillette	1	6	1
	Maple Valley	1	4	1
	Oconto city	1	.....	1
	Pensaukee	1	7	1
Outagamie ...	Black Creek	1	6	1
	Deer Creek	1	4	1
Pepin	Waterville	1	8	1
Pierce.....	River Falls and Troy, St. Croix Co.	3	1	3
Polk	Clear Lake.....	2	6	2
	Clear Lake.....	1	5	1
	Eureka	1	5	1
	Georgetown	1	2	1
	St. Croix Falls.....	1	1	1
Portage	Stevens Point city	1	.....	1
Racine	Burlington and Rochester	1	3	1
St. Croix ...	Cylon	1	4	1
	Emerald	1	5	1
Sauk	Franklin	1	1	1
	Freedom	2	1	2
	Merrimack	1	5	1
	Reedsburg	1	1	1
Shawano	Almon	1	3	1
	Fairbanks	1	2	1
	Grant.....	1	2	1
	Shawano city	1	4	1
Sheboygan ...	Holland	1	2, 5, 6, 8 10	5
	Lima	1	2, 4, 5	3
	Lima and Wilson	1	11	1

Distribution of Dictionaries.

TABLE No. XXX.— DISTRIBUTION OF DICTIONARIES — Continued.

COUNTIES.	TOWNS.	Depart- ments.	No. of districts.	No. of copies.
Sheboygan ...	Lyndon		3, 6, 8, 10	4
	Plymouth		1, 2	2
	Rhine and Greenbush		11	1
	Scott		1, 3, 4, 5, 9, 10	6
	Sheboygan		2, 4	2
	Sherman		4, 10, 11, 13	4
	Sherman and Scott		5	1
	Wilson		5	1
Taylor	Little Black		7	1
	Medford		8	1
Trempealeau ..	Sumner and Unity		5	1
	Unity		2	1
Vernon	Viroqua	1	5	1
	Webster		25	1
Walworth	Richmond		3	1
	Sharon	1	11	1
	Spring Prairie		6	1
Washington ..	Barton		4	1
	Kewaskum	2	5	2
Waukesha	West Bend		3	1
	Brookfield		3, 7, 8	3
	Brookfield and Pewaukee		6	1
	Delafield	1	4	1
	Eagle		2, 3	2
	Genesee		1, 5, 6	3
	Lisbon		3	1
	Menomonee		5, 9	2
	Menomonee and Granville		11	1
	Merton		7	1
	Merton and Lisbon		6	1
	Mukwanago		2, 7	2
	Mukwanago and Eagle		6	1
	New Berlin		1, 2, 4, 5, 7, 8	6
	Oconomowoc and Summit	2	3	2
	Ottawa		2, 9	2
	Pewaukee		8	1
	Pewaukee and Brookfield		9	1
	Pewaukee and Waukesha		6	1
	Summit		6	1
	Vernon		2, 4	2
	Waukesha		2	1
	Waukesha and New Berlin		3	1
	Waukesha and Pewaukee		1, 5	2
Waupaca	Larabee		6, 7	2
	New London city	1	1	1
	St. Lawrence		2	1
Waushara	Waupaca city	4	U. 1 and 4	4
	Plautusfield and Oasis		9	1
	Total			211

Dictionaries Sold.

TABLE No. XXXI.

DICTIONARIES SOLD.

Statement showing the districts to which dictionaries have been sold during the year ending December 10, 1881.

COUNTIES.	TOWNS.	Depart- ments.	No. of districts.	No. of copies.
Adams	Easton.....	.....	5	1
Barron	Prairie Farm .....	.....	2	1
	Stanford and Rice Lake.....	.....	2	1
	Sumner.....	.....	3	1
Brown	Ft. Howard city.....	4	.....	4
	Lawrence.....	.....	6	1
Buffalo.....	Modena and Gilmanton.....	.....	1	1
	Naples .....	.....	2	1
Calumet.....	Harrison.....	.....	11	1
	Stockbridge.....	.....	1	1
Chippewa	Bloomer .....	.....	4	1
	Eagle Point.....	.....	1 to 19	19
Clark	Beaver, Unity, and Colby .....	.....	1	1
	Loyal.....	.....	5	1
	Mentor and Garden Valley .....	.....	1	1
	Western .....	.....	5	1
Columbia	Caledonia.....	.....	4	1
	Dekorra .....	.....	8	1
	Fountain Prairie.....	.....	3, 5	2
	Ft. Winnebago and Buffalo, M'rq'u'tte Co. ....	.....	3	1
	Marcellon.....	.....	4	1
	Otsego.....	.....	2, 4	2
	Randolph.....	.....	2	1
	West Point .....	.....	3, 5	2
Crawford.....	Eastman.....	.....	6, 7	2
	Haney and Clayton.....	.....	9	1
	Prairie du Chien city.....	1	.....	1
	Scott .....	.....	2	1
	Seneca.....	.....	9	1
Dane.....	Albion.....	.....	7	1
	Bristol.....	.....	7	1
	Burke.....	.....	4	1
	Christiana.....	.....	10	1
	Cottage Grove and Sun Prairie.....	.....	11	1
	Deerfield .....	.....	4	1
	Dunkirk.....	.....	7	1
	Fitchburg and Dunn.....	.....	2	1
	Oregon .....	.....	6	1
	Pleasant Springs .....	.....	3, 4	2
	Roxbury.....	.....	1	1
	Westport.....	.....	4	1
	Windsor.....	.....	6, 7	2
Dodge.....	Burnett.....	.....	2	1
	Calamus.....	.....	8	1
	Chester .....	.....	6, 8	2

Dictionaries Sold.

TABLE No. XXXI.—DICTIONARIES SOLD—Continued.

COUNTIES.	TOWNS.	Depart- ments.	No. of districts.	No. of copies.
Dodge	Clyman		8	1
	Lowell		2, 3, 6	3
	Oak Grove		4, 7	2
	Waupun city and Chester		1	1
Door.....	Westford (Jt.)		2	1
	Brussels and Gardner.....		1	1
Dunn	Sturgeon Bay		2	1
	Menomonie.....		2	1
Eau Claire ...	Rock Creek		2	1
	Bridge Creek.....		5	1
Fond du Lac..	Union		2	1
	Ashford		2	1
	Empire.....		6	1
	Fond du Lac		8	1
Grant.....	Mentomen, Alto, etc.....		10	1
	Ripon		3	1
	Rosendale		6	1
	Waupun and City.....	8	1	8
	Beetown		4	1
	Hazel Green		1	1
Green.....	Jamestown		1	1
	Mt. Hope and Woodman		3	1
	Patch Grove.....		1, 5	2
	Waterloo		6	1
	Albany and Brooklyn..		2	1
	Brooklyn		5	1
Green Lake ..	Clarno		3	1
	Jordan		4	1
	Monroe.....		4	1
	Berlin and Nepeuskun, Winnebago Co.		12	1
Iowa.....	Arena		2	1
	Waldwick		5	1
Jackson.....	Melrose		1	1
Jefferson	Lake Mills, etc., Deerfield, etc., Dane Co.		6	1
	Lake Mills, Milford, and Waterloo.....		10	1
	Oakland and Sumner.....		4	1
	Sullivan		6	1
Juneau.....	Waterloo		2	1
	Fountain		5	1
	Lemonweir		6	1
	Wonewoc		9	1
Kenosha	Wonewoc and Hillsborough, Vernon Co.		7	1
	Paris.....		7, 10	2
	Randall		1	1
	Wheaton, Salem, and Randall		10	1
Kewaunee....	Carlton		2	2
	West Kewaunee and Kewaunee.....		2	1
La Fayette ...	Fayette.....		1	1
	Gratiot		2	1
	Wayne		1, 2	2

Dictionaries Sold.

TABLE No. XXXI.—DICTIONARIES SOLD—Continued.

COUNTIES.	TOWNS.	Depart- ments.	No. of districts.	No. of copies.
Manitowoc ...	Cato and Rockland		8	1
	Franklin		9	1
	Gibson		1	1
	Manitowoc city.....	8	2	1
	Mishicott and Gibson		2	1
	Newton		1	1
Marathon	Hull, and Colby, Clark county.....	2	1	2
Marquette	Buffalo.		6	1
	Neshkoro.....		1	1
	Newton.....		5	1
	Westfield and Springfield.....		5	1
	Westfield, Springfield, Newton, & Harris		1	1
	Wauwautosa		3	1
Milwaukee ...	Sparta and Angelo.....	2	1	2
Monroe	Tomah.....		6	1
	Wilton.....		2	1
Oconto	Oconto.....		3	1
Outagamie ...	Oconto city.....	3		3
	Appleton city.....	1	1	1
	Bovina.....		1	1
	Dale.....		3	1
Ozaukee	Greenville		2	1
	Mequon		8	1
Pierce.....	El Paso.....		1	1
	Hartland and Isabella		2	1
Polk	Oceola.....		2	1
Portage	Pine Grove.....		2	1
Racine	Caledonia.....		13	1
	Mt. Pleasant		11	1
	Raymond		4	1
	Raymond and Franklin.....		6	1
	Forest and Liberty		9	1
	Willow.....		10	1
Rock.....	Willow and Ithica ..		7	1
	Beloit city.....	3		3
	Center and Plymouth.....		2	1
	Center, Magnolia, and Plymouth.....		2	1
	Janesville city (H. S.).....	1		1
	Newark		6	1
	Spring Valley		3	1
	Turtle and Clinton		2 and 8	1
St. Croix	Turtle and La Prairie.....		1 and 5	1
	Kinnikinnick		2	1
Sauk	St. Croix.....		1	1
	Baraboo ..		6	1
	Baraboo and Freedom.....		5	1
	Bear Creek.....		1, 5	2
	Fairfield.....		1, 4	2

Dictionaries Sold.

TABLE NO. XXXI.—DICTIONARIES SOLD — Continued.

COUNTIES.	TOWNS.	Depart- ments.	No. of districts.	No. of copies.
Sauk	Greenfield		1	1
	Ironton		5	1
	Merrimack		5	1
	Reedsburg		2	1
	Washington		8	1
Sheboygan ...	Woodland		6	1
	Greenbush		9	1
	Mitchell		5	1
Trempealeau ..	Trempealeau	2	1	2
Vernon	Genoa and Harmony		1 and 2	1
	Viroqua	8	5	3
Walworth ...	Geneva		2	1
	Geneva	8	U. 1	8
	LaFayette		3	1
	Troy		4	1
	Troy and LaGrange		2	1
Washington ..	Whitewater		4	1
	Erin		2	1
Waukesha	Menomonee		1	1
	Ottawa		1	1
	Vernon		3	1
Waupaca	Bear Creek		4	1
	Iola		1	1
	Royalton		2	1
	St. Lawrence		10	1
	Union		2	1
Waushara	Waupaca city	1	U. 1	1
	Aurora		7	1
	Deerfield, Hancock, Oasis, and Plainfield		6	1
	Marion and Mt. Morris		1	1
	Mt. Morris		1	1
Winnebago...	Springwater		6	1
	Warren		7	1
	Black Wolf and Nekimi		5	1
Wood	Nepeuskun		3	1
	Oshkosh		9	1
	Sigel		1	1
Total copies				236

Teachers' State Certificates in Force.

TABLE NO. XXXII.

TEACHERS' STATE CERTIFICATES IN FORCE, DECEMBER 31, 1881.

Obtained by State Examination.

NAMES.	Kind of certificate.	Year issued.	Present post-office address.	Teaching or not teaching.
Ira C. Adams	Five years...	1880	Viroqua	No.
B. F. Anderson	Unlimited...	1874	Sheboygan Falls.....	Yes.
Edwin Auerswald	Unlimited...	1880	Marinette	Yes.
Hosea Barns	Unlimited...	1871	River Falls	Yes.
Edward Beckwith	Unlimited...	1879	West Bend	Yes.
Warren J. Brier	Unlimited...	1876	Plymouth	Yes.
Thos. B. Broughan	Unlimited...	1871	Chicago, Ill.....	No.
Amzi W. Burton	Five years...	1880	Glenbeulah	Yes.
J. F. Byers	Unlimited...	1876	Minneapolis, Minn...	No.
Winsor W. Calkins	Five years...	1881	Randolph	Yes.
Etta S. Carle	Unlimited...	1871	Janesville	Yes.
A. E. Chase	Unlimited...	1875	Georgetown, Col....	No.
John L. Cleary	Unlimited...	1876	Waseca, Minn.....	No.
Thomas L. Cleary	Unlimited...	1876	Platteville	No.
Elsena Wiswall <i>Clough</i> ..	Unlimited...	1877	Portage	Yes.
W. A. De La Matyr	Unlimited...	1871	Middleton	Yes.
James B. Estee	Unlimited...	1880	Woodstock, Ill	Yes.
Thomas F. Frawley	Unlimited...	1875	Eau Claire	No.
J. A. Gaynor	Unlimited...	1871	Grand Rapids	No.
Wm. L. Gordon	Five years...	1878	Charleston, S. C.....	Yes.
Joseph H. Gould	Five years...	1881	Oconto	Yes.
Martha E. Hazard	Unlimited...	1871	Beloit	Yes.
Patrick H. Hewitt	Five years...	1881	Meeme	Yes.
John Fred Hirsch	Unlimited...	1880	Milwaukee	Yes.
D. E. Holmes	Unlimited...	1871	Henry, Ill.....	No.
Mary E. Holmes	Unlimited...	1871	Henry, Ill.....	No.
De Etta Howard	Unlimited...	1872	Janesville	Yes.
Martha Kidder	Unlimited...	1876	Eau Claire	Yes.
Dwight Kinney	Unlimited...	1878	Darlington	Yes.
Michael Kirwan	Unlimited...	1873	Manitowoc	No.
Mark H. Koettinger	Unlimited...	1870	San Jose, Cal....	Yes.
Mary Lantry	Five years...	1878	Manitowoc	Yes.
Mary Lantry	Unlimited...	1880	Manitowoc	Yes.
Charles Lau	Unlimited...	1871	Cedarburg	Yes.
Clinton H. Lewis	Unlimited...	1876	Windsor	No.
James T. Lunn	Unlimited...	1873	Ironton	No.
Michael McMahon	Unlimited...	1878	Kewaunee	Yes.
James T. McCleary	Unlimited...	1879	Mankato, Minn.....	Yes.
George S. Martin	Unlimited...	1876	Fond du Lac	No.
Arthur A. Miller	Unlimited...	1878	Waukesha	Yes.
John Nagle	Unlimited...	1873	Manitowoc	No.
Charles F. Ninman	Unlimited...	1875	Watertown	Yes.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881 — Continued.*Obtained by State Examination — Continued.*

NAMES.	Kind of certificate.	Year issued.	Present post-office address.	Teaching or not teaching.
Philip H. Perkins	Unlimited...	1880	Madison	Yes.
H. M. Rulifson	Five years...	1880	Watseca, Ill.	Yes.
Albert Salisbury	Unlimited...	1872	Whitewater	Yes.
Harriet A. Salisbury	Five years...	1878	Whitewater	Yes.
Harriet A. Salisbury	Unlimited...	1880	Whitewater	Yes.
Albert Edward Schaub	Five years...	1880	Rochester	Yes.
Randolph H. Schmidt	Unlimited...	1870	Appleton	Yes.
John W. Sercomb	Unlimited...	1878	Chicago	No.
Samuel Shaw	Unlimited...	1871	Madison	Yes.
Edwin R. Smith	Unlimited...	1879	Burlington	Yes.
Maria S. Hill <i>Snow</i>	Unlimited...	1871	Rochester, N. Y.	No.
Kirk Spoor	Unlimited...	1875	Brandon	Yes.
Isaac N. Stewart	Unlimited...	1871	Waukesha	Yes.
Herman Studer	Unlimited...	1868	Germany .....	....
Winfield Scott Sweet	Five years...	1880	Richland Center	Yes.
Howard L. Terry	Five years...	1881	Lowell	Yes.
James S. Thomas	Five years...	1881	Reedsburg	No.
Miss L. J. Torrey	Unlimited...	1871	Big Springs	Yes.
Martha A. Terry <i>Tracy</i> ..	Unlimited...	1871	Columbia, Mo.	No.
Volney Underhill	Unlimited...	1872	Chicago, Ill.	Yes.
Charles F. Viebahn	Unlimited...	1868	Watertown	Yes.
Thomas Voegele	Five years...	1881	Fountain City	Yes.
Thomas J. Walsh	Five years...	1879	Kewaunee	Yes.
Thomas J. Walsh	Unlimited...	1881	Kewaunee	Yes.
Henry C. Walsh	Five years...	1881	Two Rivers	Yes.
Elvin C. Wiswall	Unlimited...	1876	Sauk City	Yes.
Adolph R. Wittman	Five years...	1881	Kiel	Yes.
Albert Wood	Unlimited ..	1876	Lone Rock	Yes.
Charles Zimmermann	Unlimited...	1873	Milwaukee	Yes.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881 — Continued.*Diplomas of Graduates of Wisconsin University, Countersigned by the State Superintendent.*

NAMES.	Graduated in what course.	In what year.	Date of coun- tersigning.	Present post- office ad- dress.	Teaching or not teaching.
Mary Dwight Akers..	Scientific	1874	July 10, '78	Red Wing, Minn.	No.
Hattie E. Bacon.....	Scientific	1875	July 29, '78	Manitowoc.....	Yes.
Alice Crawford Bailey	Scientific	1875	June 10, '78	Spirit Lake, Iowa	No.
John Brindley, Jr....	Scientific	1874	Feb. 6, '79	La Crosse.....	No.
J. H. Calkins.....	Scientific	1876	Jan. 29, '79	Merton.....	No.
Lillie S. Clark.....	Scientific	1876	July 9, '80	Portage.....	Yes.
John G. Conway.....	Scientific	1879	June 10, '81	Waterloo.....	Yes.
Will A. Corson.....	Scientific	1878	May 25, '80	Mazomanie.....	Yes.
Henry W. Deming..	Scientific	1872	Apr. 17, '78	Neillsville.....	Yes.
R. B. Dudgeon.....	Scientific	1876	July 26, '78	Hudson.....	Yes.
Phillip Eden.....	Scientific	1872	July 29, '78	Platteville.....	Yes.
Alice Stickney Elliot.	Scientific	1877	Dec. 31, '79	Milwaukee.....	No.
M. S. Fawley.....	Scientific	1873	Dec. 26, '78	Eau Claire.....	Yes.
Almah J. Frisby.....	Scientific	1878	July 1, '80	West Bend.....	No.
Willard J. Fuller....	Scientific	1878	Apr. 21, '80	Delavan.....	Yes.
William A. Germain.	Classical.	1878	May 3, '80	Waukesha.....	No.
Anna M. Gorham....	Normal..	1867	Apr. 14, '79	Madison.....	No.
Charles F. Harding..	Classical.	1875	Dec. 20, '78	Madison.....	No.
Eleanor Henry.....	Scientific	1876	June 9, '79	Madison.....	No.
Mary M. Henry.....	Scientific	1876	Sept. 8, '79	McFarland.....	No.
Emmet R. Hicks.....	Scientific	1876	June 21, '81	Oshkosh.....	No.
Hattie M. Hover.....	Scientific	1877	Apr. 29, '79	Mazomanie.....	No.
Ida M. Hoyt.....	Scientific	1879	June 30, '81	Hudson.....	Yes.
Jennie Chapman Hoyt	Scientific	1876	Apr. 29, '79	Lodi.....	No.
Ella Larkin.....	Normal..	1867	June 13, '79	Madison.....	Yes.
Mary McCoy.....	Scientific	1874	Dec. 13, '78	Oregon.....	Yes.
Edwin Marsh.....	Classical	1859	Nov. 7, '81	Reedsburg.....	Yes.
Anna M. Martin.....	Scientific	1874	Aug. 4, '79	Blue Mounds....	....
James Melville.....	Civ. Eng.	1875	Jan. 28, '79	Weyauwega.....	Yes.
Clara Moore.....	Scientific	1875	July 5, '78	Lancaster.....	....
Frank Moore.....	Scientific	1877	July 11, '81	Lancaster.....	Yes.
Jane Nagle.....	Scientific	1869	July 29, '78	Patch Grove.....	No.
Eliza Nagle.....	Scientific	1874	July 29, '78	Edgerton.....	Yes.
Mary L. Nelson.....	Scientific	1876	June 27, '79	Madison.....	Yes.
Mary J. Oertel.....	Scientific	1876	Nov. 1, '80	Prairie du Sac...	Yes.
H. M. Remington Olin.	M'd.Clas.	1876	June 18, '78	Madison.....	No.
Annie A. Porter.....	Scientific	1877	July 11, '79	Sparta.....	Yes.
Nettie L. Porter.....	Scientific	1878	May 13, '80	Eau Claire.....	Yes.
E. E. Dudgeon Quirk.	Scientific	1876	July 7, '79	Aurelia, Iowa....	No.
Matilda Reul.....	Scientific	1877	July 11, '81	Mondovi.....	Yes.
Frederick B. Robinson	Scientific	1878	Apr. 26, '80	Mineral Point...	No.
Elizabeth S. Spencer.	Scientific	1869	Oct. 21, '80	Madison.....	Yes.
Isaac N. Stewart....	Scientific	1862	Apr. 10, '79	Waukesha.....	Yes.
Helen D. Street.....	Classical.	1876	Jan. 24, '79	Waukesha.....	No.
Abbey De F. Stuart..	Scientific	1876	Jan. 24, '79	Madison.....	Yes.

Teachers' State Certificates in Force.

**TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881 — Continued.**

*Diplomas of Graduates of Wisconsin University, Countersigned by the State
Superintendent — Continued.*

NAMES.	Graduated in what course	In what year.	Date of coun- tersigning.	Present post- office ad- dress.	Teaching or not teaching.
George C. Synon.....	Scientific	1875	Sept. 10, '80	Columbus	No.
William E. Todd.....	Scientific	1877	Oct. 6, '79	Albert Lea, Minn.	No.
J. B. Trowbridge.....	Civ. Eng.	1876	Jan. 17, '79	Ashton.....	....
Joseph M. Turner.....	Civ. Eng.	1877	Apr. 14, '79	Mayville.....	Yes.
George L. Voorhees...	Classical.	1879	Apr. 18, '81	Montvedio, Minn.	Yes.
Frances A. Walbridge.	Scientific	1876	Jan. 24, '79	Baraboo.....	Yes.
Allen F. Warden.....	Scientific	1873	Dec. 28, '81	Plymouth.....	No.
Eleanor M. Williams..	Scientific	1876	June 12, '79	Eau Claire.....	Yes.
Barnard C. Wolter...	Scientific	1875	May 27, '78	Appleton.....	No.
Edwin D. Wood.....	Scientific	1874	July 23, '78	West Salem....	Yes.

*Diplomas of Graduates of Denominational Colleges, Countersigned by the State
Superintendent.*

NAMES.	Graduated at what Institution.	In what Course.	In what year.	Date of coun- tersigning.	Teaching or not teaching.
Eva M. Mills <i>Anderson</i> .	Law. University	Classical.	1867	April 15, '81	Yes.
John Henry Boyle	Milton College.	Scientific	1878	July 7, '80	Yes.
Lewis H. Bushnell	Beloit College.	Classical.	1878	July 7, '80	Yes.
Anna M. Chynoweth ...	Law. University	Scientific	1873	Oct. 26, '80	....
Ella Olivia Clark	Law. University	Scientific	1878	Oct. 21, '81	Yes.
Sarah F. Combs.....	Ripon College.	Scientific	1873	Sept. 16, '80	Yes.
Edward W. Farnham...	Law. University	Classical.	1876	July 7, '80	Yes.
George T. Foster.....	Beloit College.	Classical.	1875	Aug. 3, '80	Yes.
Charles M. Gates	Milton College.	Scientific	1876	April 30, '80	Yes.
A. Josie Godwin.....	Law. University	Scientific	1874	May 3, '80	Yes.
Miriam Barteau <i>Graves</i> .	Law. University	Scientific	1868	April 25, '81	Yes.
Miriam E. Harris	Ripon College.	Scientific	1875	Aug. 10, '80	Yes.
Lorenzo Dow Harvey...	Milton College.	Scientific	1872	June 28, '80	No.
Lucius Heritage.....	Milton College.	Classical.	1875	June 24, '81	Yes.
Daniel O. Hibbard.....	Milton College.	Scientific	1875	June 21, '80	Yes.
Almira I. Hobart.....	Ripon College.	Scientific	1874	June 24, '81	Yes.
Sanford A. Hooper	Beloit College.	Classical.	1872	Nov. 15, '80	Yes.
Gertrude S. Irish.....	Law. University	Scientific	1877	Oct. 10, '81	Yes.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.*Diplomas of Graduates of Denominational Colleges, Countersigned by the State Superintendent—Continued.*

NAMES.	Graduated at what Institution.	In what Course.	In what year.	Date of con- tersigning.	Teaching or not teaching.
John G. Ingalls	Ripon College.	Scientific	1876	Oct. 7, '80	Yes.
Fanny I. Kennish	Law. University	Scientific	1877	Aug. 10, '80	Yes.
H. De Witt Kinney	Milton College.	Scientific	1878	Sept. 16, '80	Yes.
O. Eugene Larkin	Milton College.	Classical	1878	June 27, '81	Yes.
Fannie C. Le Gros	Law. University	Scientific	1877	April 21, '80	Yes.
Alfred C. McComb	Law. University	Scientific	1878	June 21, '80	Yes.
David W. Mackay	Beloit College.	Classical	1877	Jan. 24, '81	Yes.
Charles W. Merriman	Beloit College.	Classical	1878	July 5, '81	Yes.
Orville W. Mosher	Ripon College.	Classical	1879	Aug. 23, '81	Yes.
Francis A. Nimits	Law. University	Scientific	1879	M'ch 16, '81	Yes.
Grace Pomeroy	Law. University	Scientific	1876	May 4, '80	Yes.
Milton C. Porter	Law. University	Scientific	1879	Jan. 19, '81	No.
Mary E. Richmond	Law. University	Scientific	1878	Oct. 20, '80	Yes.
Sarah E. Scribner	Ripon College.	Scientific	1872	June 8, '80	Yes.
Jean C. Sherwood	Ripon College.	Scientific	1875	Feb. 24, '81	No.
Eliza Pratt Spaulding	Law. University	Scientific	1868	Aug. 20, '80	Yes.
Almarin R. Sprague	Beloit College.	Classical	1876	May 29, '80	Yes.
Ignatius D. Steffen	Law. University	Scientific	1879	May 9, '81	Yes.
Louis K. Strong	Ripon College.	Scientific	1876	June 11, '80	Yes.
Edwin Swinney	Milton College.	Scientific	1871	June 8, '80	Yes.
Florence C. Thompson	Law. University	Classical	1879	April 6, '81	Yes.
William D. Tickner	Milton College.	Classical	1876	Apr. 30, '80	Yes.
Ida E. Tilson	Ripon College.	Scientific	1873	Dec. 6, '80	Yes.
Lyman H. Warner	Ripon College.	Classical	1875	May 4, '80	Yes.
Julia M. White	Law. University	Scientific	1871	June 11, '80	Yes.
Robert D. Whitford	Milton College	Classical	1874	Sept. 9, '80	No.
Alexander B. Whitman	Law. University	Classical	1875	M'ch 28, '81	Yes.
William A. Willis	Beloit College.	Classical	1876	Dec. 2, '80	Yes.
Ida B. Wright	Law. University	Scientific	1876	June 29, '80	Yes.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.*Certificates and Diplomas of Graduates of the State Normal Schools, Counter-
signed by the State Superintendent.*

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
W. D. Ackerman.....	Whitewater.	Certificate.	1878	June 19, '79	No.
James G. Adams.....	Platteville..	Certificate.	1877	Nov. 3, '80	Yes.
James G. Adams.....	Platteville..	Diploma..	1880	July 11, '81	Yes.
John Alcock.....	Platteville..	Certificate.	1879	June 22, '80	Yes.
S. R. Alden.....	Whitewater.	Diploma..	1870	.....	No.
Jas. M. Allen.....	Whitewater.	Diploma..	1874	Aug. 2, '75	Yes.
Walter Allen.....	Whitewater.	Diploma..	1873	Jan. —, '75	Yes.
Martha J. Ames.....	River Falls.	Certificate.	1878	June 10, '80	Yes.
Martha J. Ames.....	River Falls.	Diploma..	1880	July 6, '81	Yes.
Wm. E. Anderson.....	Whitewater.	Diploma..	1871	—, '72	Yes.
L. J. Arthur.....	Platteville..	Diploma..	1871	—, '72	No.
Ella C. Aspinwall.....	Platteville..	Diploma..	1873	July —, '74	Yes.
Velmer Sylvester Barber.	Platteville..	Diploma..	1873	June —, '74	No.
Marion J. Barber.....	Whitewater.	Diploma..	1880	June 30, '81	Yes.
F. A. Raymond Barnard.	Whitewater.	Diploma..	1877	July 29, '78	No.
Kate E. Basye.....	Platteville..	Certificate.	1876	July 1, '79	Yes.
C Will Beers.....	Platteville..	Certificate.	1876	Oct. 7, '78	Yes.
Dora J. Beer.....	Oshkosh...	Certificate.	1880	July 13, '81	Yes.
E. A. Benedict.....	Oshkosh...	Certificate.	1878	July 28, '79	Yes.
Mamie M. Bevans.....	Platteville..	Certificate.	1880	June 29, '81	Yes.
Maria Bivins.....	Whitewater.	Diploma..	1874	—, '75	Yes.
Ernest W. Blackstone...	Platteville..	Certificate.	1878	Oct. 26, '81	No.
Alvin J. Blakey.....	Whitewater.	Diploma..	1877	June 10, '78	Yes.
Mary W. Colton Boies...	Whitewater.	Diploma..	1871	—, '73	No.
Geo. M. Bowen.....	Whitewater.	Diploma..	1870	July —, '71	Yes.
Eugene R. Boynton.....	Platteville..	Diploma..	1872	—, '73	No.
Ida-A. Boynton.....	Platteville..	Certificate.	1879	Apr. 12, '81	Yes.
Nettie E. Brainerd.....	Platteville..	Diploma..	1878	Dec. 5, '79	Yes.
Chas. Brandon.....	Platteville..	Diploma..	1873	June 24, '74	No.
Robt. A. Bratton.....	Platteville..	Certificate.	1878	June 26, '79	Yes.
Anna Bray.....	Whitewater.	Certificate.	1878	Dec. 27, '79	Yes.
Kate Brennan.....	Whitewater.	Diploma..	1875	June 10, '78	Yes.
Martha Brindley.....	Platteville..	Certificate.	1877	Mar. 4, '79	Yes.
Henrietta E. Brown.....	Whitewater.	Certificate.	1879	Apr. 30, '80	Yes.
Ira M. Buell.....	Whitewater.	Diploma..	1874	Aug. 2, '75	Yes.
Arthur Burch.....	Oshkosh...	Diploma..	1880	July 13, '81	Yes.
Minnie L. Burgess.....	Whitewater.	Certificate.	1879	July 8, '80	Yes.
John F. Burke.....	Oshkosh...	Diploma..	1875	July 7, '76	No.
C. A. Burlew.....	Platteville..	Diploma..	1876	July 12, '77	Yes.
Edith A. Bennett.....	Platteville..	Certificate.	1879	July 8, '80	No.
Sadie F. Burr.....	Platteville..	Diploma..	1878	June 26, '79	Yes.
Minnie Irwin Bushnell...	Platteville..	Diploma..	1876	Nov. 30, '81	No.
Florian Cajori.....	Whitewater.	Certificate.	1878	June 11, '79	No.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881 — Continued.*Certificates and Diplomas of Graduates of the State Normal Schools, Counter-
signed by the State Superintendent — Continued.*

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
Eva E. Calmerton.....	Oshkosh ...	Certificate.	1878	May 25, '80	Yes.
Wm. H. Corey.....	Whitewater.	Certificate.	1877	June 20, '78	No.
Agnes D. Carpenter	Oshkosh ...	Certificate.	1878	Oct. 23, '79	Yes.
Anna Cassidy	Whitewater.	Certificate.	1880	Oct. 21, '81	Yes.
Hattie E. Celleyham.....	Whitewater.	Certificate.	1878	June 27, '79	Yes.
Fannie Chafin.....	Whitewater.	Diploma ..	1879	May 24, '80	Yes.
Lil. Redington Chamberlin	Whitewater.	Diploma ..	1873	July —, '74	No.
Anna C. Clark	Oshkosh ...	Certificate.	1879	Sept. 6, '81	Yes.
Harriet E. Clark	Oshkosh ...	Diploma ..	1875	July 14, '76	No.
Lewis H. Clarke	Whitewater.	Diploma ..	1879	July 7, '80	Yes.
Alice L. Meadows Clarke	Whitewater.	Diploma ..	1878	June 20, '79	Yes.
Maud Goodfellow Clark..	Platteville..	Diploma ..	1874	Sept. 7, '77	No.
S. Leora Clay.....	Platteville..	Diploma ..	1871	July —, '72	Yes.
Francis Cleary	Platteville..	Certificate.	1877	June 11, '78	Yes.
Clemenc. H. Cole.....	Whitewater.	Diploma ..	1874	Oct. 23, '79	Yes.
Elizabeth J. Cole.....	Whitewater.	Certificate.	1875	Dec. 26, '81	No.
Alura A. Collins	Whitewater.	Diploma ..	1874	—, '75	Yes.
Jas. W. Congdon.....	Whitewater.	Diploma ..	1870	Oct. —, '71	Yes.
Margaret E. Conklin...	Whitewater.	Diploma ..	1873	Sept. —, '74	Yes.
Ada Ray Cooke.....	Whitewater.	Diploma ..	1877	June 6, '79	Yes.
Ella C. Cooke.....	Whitewater.	Diploma ..	1878	June 27, '79	No.
Lewis E. Cooley	Platteville..	Diploma ..	1874	—, '75	Yes.
Ernestine Stevens Cooley.	Platteville..	Diploma ..	1874	—, '76	No.
John W. Corse.....	Oshkosh ...	Certificate.	1878	Jan. 8, '80	Yes.
Kate J. Proctor Coy.....	River Falls.	Certificate.	1879	Nov. 1, '80	Yes.
D. R. Crowell.....	Platteville..	Diploma ..	1872	—, '73	No.
Garry E. Culver.....	Whitewater.	Diploma ..	1874	Aug. 2, '75	Yes.
Ada I. Dann	Whitewater.	Diploma ..	1876	Sept. 16, '78	Yes.
Mary De Lany	Whitewater.	Diploma ..	1872	Sept. —, '73	Yes.
E. C. Dickinson.....	Platteville..	Certificate.	1878	April 18, '79	Yes.
Thomas Door.....	Whitewater.	Certificate.	1879	Aug. 23, '80	Yes.
Lillian A. Duffies	Oshkosh ...	Diploma ..	1876	July 12, '77	Yes.
Emelina W. Dunbar.....	Whitewater.	Certificate.	1878	D. c. 9, '79	Yes.
Lizzie I. Dwinell.....	Whitewater.	Certificate.	1879	Sept. 8, '80	Yes.
Etta Edwards.....	Whitewater.	Certificate.	1879	Feb. 24, '81	Yes.
Florence Elgar.....	Platteville..	Certificate.	1878	June 22, '80	Yes.
Sophia Engelbreton....	Whitewater.	Certificate.	1878	Aug. 23, '79	Yes.
Frank D. Ensign.....	River Falls.	Diploma ..	1879	June 14, '81	Yes.
Hattie M. Powell Ensign	River Falls.	Diploma ..	1879	June 10, '80	Yes.
C. E. Estabrooke.....	Platteville..	Diploma ..	1870	June —, '71	No.
Alice A. Ewing	Whitewater.	Diploma ..	1876	Sept. 16, '78	Yes.
A. L. Ewing	Whitewater.	Diploma ..	1876	Sept. 17, '77	Yes.
Emma Sabin Fillins.....	Oshkosh ...	Certificate.	1876	July 4, '79	No.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.*Certificates and Diplomas of Graduates of the State Normal Schools, Counter-
signed by the State Superintendent—Continued.*

NAME.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
Margaret M. Finch	Whitewater.	Certificate.	1879	Aug. 9, '81	Yes.
Sadie E. Fiske	Whitewater.	Certificate.	1878	April 23, '80	Yes.
Kate Roser Flower	Platteville..	Diploma ..	1876	Mar. 24, '79	No.
Emma Foulks	Platteville..	Certificate.	1879	June 29, '81	Yes.
Alfred J. Frazier	Platteville..	Certificate.	1878	M'ch 1, '81	Yes.
Nettie A. Freeman	Oshkosh ..	Certificate.	1876	Sept. 21, '77	No.
John J. Fruit	Platteville..	Diploma ..	1871	—, '72	No.
Lewis Fank	Platteville..	Diploma ..	1869	July 3, '70	Yes.
L. W. Gammons	Oshkosh ..	Certificate.	1876	July 7, '77	Yes.
Alice J. Gantt	Whitewater.	Diploma ..	1878	Aug. 25, '79	Yes.
Dennis J. Gardiner	Platteville..	Diploma ..	1875	July 12, '77	No.
Hannah Sackpole <i>Gentil</i> ..	Whitewater.	Diploma ..	1871	Sept. 12, '81	Yes.
Johannah B. George	Platteville..	Diploma ..	1873	July —, '74	Yes.
Manuel L. Gibbon	Oshkosh ..	Certificate.	1878	Aug. 18, '79	Yes.
Will W. Girtton	Platteville..	Diploma ..	1874	July —, '75	No.
Ezra A. Grover, Jr.	River Falls.	Certificate.	1879	Dec. 23, '81	Yes.
Kate A. Glynn	Oshkosh ..	Certificate.	1878	June 16, '80	Yes.
Margaret Graney	Platteville..	Diploma ..	1871	—, '72	Yes.
Sarah Week <i>Gribe</i>	Whitewater.	Diploma ..	1874	Aug. 28, '75	No.
Annie M. Greene	Whitewater.	Diploma ..	1872	Sept. —, '73	Yes.
Estelle Wells <i>Green</i>	Platteville..	Diploma ..	1877	June 27, '78	No.
Ida Newman <i>Gridley</i>	Platteville..	Certificate.	1878	June 26, '79	No.
Ada Grindell	Platteville..	Diploma ..	1873	—, '74	No.
Lillie J. Grindell	Platteville..	Certificate.	1877	Aug. 23, '79	Yes.
J. Lillie Griswold	Platteville..	Diploma ..	1879	June 24, '80	Yes.
B. R. Grogan	Oshkosh ..	Diploma ..	1876	July 18, '77	Yes.
Sophia Gross	Whitewater.	Certificate.	1878	June 27, '79	Yes.
Jacob P. Haber	Oshkosh ..	Diploma ..	1879	June 18, '80	Yes.
Francis J. Haber	Oshkosh ..	Certificate.	1880	Nov. 1, '81	Yes.
Mary E. Hahn	Whitewater.	Certificate.	1878	Aug. 23, '79	Yes.
James C. Hall	Oshkosh ..	Certificate.	1879	July 15, '80	Yes.
Ella A. Hamilton	Whitewater.	Diploma ..	1878	July 7, '80	Yes.
Phebe Grisly <i>Hamilton</i> ..	Platteville..	Diploma ..	1871	July —, '72	Yes.
Wm. J. Havenor	Oshkosh ..	Certificate.	1880	Aug. 9, '81	Yes.
Ferdinand B. Hawes	Whitewater.	Diploma ..	1877	Aug. 23, '81	No.
Elsie B. Hawley	Platteville..	Certificate.	1876	M'ch 15, '79	Yes.
Everett G. Haylett	Whitewater.	Certificate.	1878	July 4, '79	No.
Mary E. McBeathe <i>Hill</i> ..	Whitewater.	Diploma ..	1876	—, '77	No.
Alice Hitchings	River Falls.	Certificate.	1879	June 10, '80	Yes.
Edith Goodrich <i>Hodges</i> ..	Platteville..	Diploma ..	1874	June —, '75	No.
Alice J. Holcombe	Oshkosh ..	Certificate.	1877	Sept. 4, '78	Yes.
Ada Tyler <i>Holmes</i>	Platteville..	Diploma ..	1870	—, '71	No.
Agnes Hosford	Platteville..	Diploma ..	1870	Sept. 18, '71	No.

*Teachers' State Certificates in Force.*TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.*Certificates and Diplomas of Graduates of the State Normal Schools, Counter-
signed by the State Superintendent—Continued.*

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
Margaret Hosford.....	Oshkosh ...	Diploma ..	1875	July 14, '76	Yes.
Sarah Hugh	Oshkosh ...	Certificate ..	1878	June 11, '79	Yes.
Lou A. Falley <i>Howard</i> ...	Platteville..	Diploma ..	1872	—, '73	Yes.
Emma F. Howell.....	Whitewater..	Certificate ..	1879	Aug. 30, '80	Yes.
Fred. L. Humes.....	Oshkosh ...	Diploma ..	1879	June 17, '80	No.
A. J. Hutton	Platteville..	Diploma ..	1869	July 3, '70	Yes.
Kate McGregor <i>Hutton</i> ..	Platteville..	Diploma ..	1871	—, '72	No.
Jannet Stewart <i>Ingalls</i> ...	Whitewater..	Diploma ..	1874	June —, '75	Yes.
Henry Jane	Platteville..	Diploma ..	1870	—, '71	Yes.
Eleanor F. Janes.....	Oshkosh ...	Certificate ..	1878	July 11, '81	Yes.
Lillian R. Jarvis.....	Platteville..	Certificate ..	1876	July 12, '79	Yes.
W. T. Jennings.....	Platteville..	Diploma ..	1878	June 26, '79	Yes.
Cedora Johnson.....	Whitewater..	Diploma ..	1878	M'ch 29, '81	Yes.
Henry M. Johnston ...	Platteville..	Certificate ..	1878	Jan. 7, '80	Yes.
Mary A. Grace <i>Johnson</i> ...	Whitewater..	Certificate ..	1876	July 13, '77	No.
Martha Johnson	Whitewater..	Certificate ..	1876	June 21, '78	Yes.
Ellen C. Jones	Platteville..	Diploma ..	1870	June —, '71	Yes.
Jenny L. Jones	Platteville..	Diploma ..	1870	—, '71	Yes.
Thomas D. Jones.....	Platteville..	Diploma ..	1870	June —, '71	No.
Wm. A. Jones.....	Platteville..	Diploma ..	1872	June —, '73	No.
Edward Kalmerton.....	Oshkosh ...	Certificate ..	1880	Dec. 8, '81	Yes.
Elizabeth E. Kelley....	Whitewater..	Certificate ..	1880	Oct. 13, '81	Yes.
John Kelley.....	Platteville..	Certificate ..	1875	Oct. 24, '78	Yes.
John Kelley	Platteville..	Diploma ..	1877	Oct. 24, '78	Yes.
David S. Kennedy.....	Whitewater..	Diploma ..	1878	May 24, '80	Yes.
Clara E. Kingsley.....	River Falls..	Certificate ..	1878	April 7, '80	No.
Edward Kinne.....	Whitewater..	Diploma ..	1878	June 23, '81	Yes.
Mary Kinney.....	Whitewater..	Certificate ..	1878	Sept. 15, '79	Yes.
Geo. R. Kleeberger.....	Platteville..	Diploma ..	1870	July —, '71	Yes.
Delia Knight.....	Oshkosh ...	Certificate ..	1878	Dec. 28, '80	Yes.
Jas. Larkin	Whitewater..	Diploma ..	1873	June —, '74	No.
Cephas Leach.....	Oshkosh ...	Diploma ..	1879	July 8, '80	Yes.
Josie Lemon	Platteville..	Diploma ..	1875	July 25, '76	Yes.
Maria L. Lewis.....	Whitewater..	Diploma ..	1873	Oct. 23, '79	Yes.
Maggie Lewis.....	Platteville..	Diploma ..	1879	M'ch 28, '81	Yes.
Stephen B. Lewis.....	Whitewater..	Diploma ..	1874	Aug. 2, '75	Yes.
Mary E. Bass <i>Lord</i>	Platteville..	Diploma ..	1871	—, '72	No.
Chas. M. Long	Platteville..	Diploma ..	1873	Aug. —, '74	No.
Wm. H. Lovell.....	River Falls..	Certificate ..	1879	Oct. 20, '80	Yes.
Joseph E. Luce	Platteville..	Diploma ..	1873	June —, '74	Yes.
Jas. O. Luce	Platteville..	Diploma ..	1873	—, '75	Yes.
Kath. A. Lyons.....	Oshkosh ...	Certificate ..	1877	Apr. 7, '79	No.
Julia B. Main.....	Platteville..	Certificate ..	1876	July 12, '77	Yes.

*Teachers' State Certificates in Force.***TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.***Certificates and Diplomas of Graduates of the State Normal Schools, Counter-
signed by the State Superintendent—Continued.*

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
W. F. Main.....	Platteville..	Diploma..	1875	July 12, '76	Yes.
Ella J. Mansur.....	Whitewater.	Diploma..	1878	Nov. 11, '79	Yes.
David E. Morgan.....	Platteville..	Diploma..	1873	July —, '75	No.
Eugene J. Marsh.....	Oshkosh...	Certificate.	1876	June 13, '78	No.
Ella Marshall.....	Platteville..	Diploma..	1869	—, '71	Yes.
Fannie L. Mather.....	Whitewater.	Diploma..	1874	Aug. —, '75	No.
Alfred L. May...	Platteville..	Diploma..	1876	—, '77	Yes.
Leora McCune.....	Whitewater.	Certificate.	1879	Aug. 15, '81	Yes.
Mary L. McCutchan....	Whitewater.	Diploma..	1870	—, '71	Yes.
Wm. McGoorty.....	Whitewater.	Diploma..	1873	Aug. —, '74	Yes.
Timothy A. McGrath....	Whitewater.	Certificate.	1879	Sept. 27, '81	Yes.
Louisa McIntyre.....	Whitewater.	Diploma..	1876	June 13, '77	Yes.
Maggie E. McIntyre....	Whitewater.	Diploma..	1871	Nov. 1, '72	Yes.
Fred W. Isham.....	Whitewater.	Diploma..	1875	Dec. 27, '76	No.
Ed. McLoughlin.....	Oshkosh...	Diploma..	1875	July 18, '78	No.
Nellie McMurdo.....	Oshkosh...	Diploma..	1876	July 12, '77	Yes.
Mollie A. Mears.....	Oshkosh...	Certificate.	1878	Aug. 22, '79	Yes.
Wm. Middlecamp.....	Oshkosh...	Diploma..	1880	July 13, '81	Yes.
Cora E. Miller.....	Oshkosh...	Certificate.	1880	July 7, '81	Yes.
Frank A. Miller.....	Oshkosh...	Certificate.	1880	July 7, '81	Yes.
Geo. H. Millman.....	Platteville..	Certificate.	1876	June 27, '78	No.
Geo. H. Millman.....	Platteville..	Diploma..	1879	June 24, '80	No.
Martha A. Mizelle....	Whitewater.	Certificate.	1880	Aug. 23, '81	Yes.
Orrin B. Moon.....	Oshkosh...	Certificate.	1880	Nov. 9, '81	Yes.
Ella M. Moore.....	Whitewater.	Certificate.	1877	Dec. 8, '79	Yes.
Lucy Moors.....	Oshkosh...	Certificate.	1876	July 12, '77	No.
Emma Cook Morey.....	Whitewater.	Certificate.	1876	July 9, '77	No.
Achsah Morgan.....	Platteville..	Diploma..	1871	July 16, '72	Yes.
Vesper Morgan.....	Whitewater.	Certificate.	1877	June 14, '78	Yes.
J. F. Morin.....	Oshkosh...	Certificate.	1877	Sept. 22, '79	No.
Ruth E. Munson.....	Whitewater.	Certificate.	1878	Mar. 17, '80	No.
Mary Neely Thompson...	Platteville..	Diploma..	1877	July 18, '78	No.
Nellie S. Neely.....	Platteville..	Certificate.	1877	July 18, '78	Yes.
A. S. Newcomb.....	Platteville..	Diploma..	1872	June —, '73	Yes.
Ada E. Rice Nichols....	Whitewater.	Diploma..	1875	July 25, '76	No.
Nettie E. Noyes.....	Whitewater.	Diploma..	1875	July 25, '76	Yes.
Dora L. O'Connor.....	Whitewater.	Diploma..	1871	—, '72	Yes.
Florence E. O'Connor...	Whitewater.	Diploma..	1873	July —, '74	Yes.
Lucy M. Palmer.....	Oshkosh...	Certificate.	1880	Sept. 6, '81	Yes.
Wm. D. Parker.....	Whitewater.	Certificate.	1876	July 18, '77	Yes.
Bailey A. Palmley.....	Whitewater.	Certificate.	1878	June 28, '80	Yes.
Ada S. Peabody.....	Oshkosh...	Certificate.	1877	Oct. 7, '78	Yes.
Frances A. Peacock.....	Whitewater.	Certificate.	1879	May 24, '80	Yes.

Teachers' State Certificates in Force.

TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.

Certificates and Diplomas of Graduates of the State Normal Schools, Countersigned by the State Superintendent—Continued.

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of countersigning.	Teaching or not teaching.
Ellen A. Persons	Whitewater.	Diploma ..	1878	July 7, '80	Yes.
Annie J. Peaslee	Oshkosh ...	Certificate.	1879	Sept. 6, '81	Yes.
Lydia Ruggles Peck	Platteville..	Diploma ..	1872	July —, '73	Yes.
Emma M. Pinning	Oshkosh ...	Certificate.	1878	April 12, '81	Yes.
Anna Potter	Platteville..	Diploma ..	1873	—, '74	Yes.
Electa M. Potter	Platteville..	Diploma ..	1877	June 27, '78	Yes.
Jennie Church Potter	Whitewater.	Diploma ..	1873	—, '74	No.
Marilla Secor Purman ..	Platteville..	Diploma ..	1872	Dec. —, '73	No.
Sarah A. Pryor	Whitewater.	Diploma ..	1880	Sept. 6, '81	Yes.
John M. Quick	Platteville..	Diploma ..	1874	Aug. —, '75	Yes.
Josephine Quinlan	Whitewater.	Certificate.	1880	Dec. 29, '81	Yes.
J. M. Rait	Platteville..	Diploma ..	1869	July 3, '70	Yes.
Clara V. Rand	Platteville..	Diploma ..	1871	July —, '72	Yes.
Rose M. Randall	Whitewater.	Certificate.	1878	Sept. 24, '79	Yes.
Ida E. Rankin	Oshkosh ...	Certificate.	1878	Oct. 13, '79	Yes.
Etta J. Redington	Whitewater.	Diploma ..	1876	July 6, '77	No.
Sarah B. Redington	Whitewater.	Certificate.	1879	Jan. 7, '81	Yes.
Bessie M. Reed	Oshkosh ...	Certificate.	1879	Aug. 9, '81	Yes.
George W. Reigle	Whitewater.	Diploma ..	1879	July 7, '80	Yes.
Amma M. Rhodes	Whitewater.	Certificate.	1876	June 20, '78	No.
Matt. H. Richards	Platteville..	Diploma ..	1878	June 26, '79	Yes.
Enos S. Richmond	Whitewater.	Diploma ..	1878	June 16, '79	Yes.
J. W. Richmond	Whitewater.	Certificate.	1878	July 21, '79	No.
Lottie E. Richmond	Platteville..	Certificate.	1877	Jan. 29, '80	Yes.
Sarah Edwards Robbins ..	Whitewater.	Diploma ..	1871	—, '73	No.
Nancy Robbins ..	Oshkosh ...	Certificate.	1879	Aug. 31, '80	Yes.
Maggie Ray Roby	Whitewater.	Diploma ..	1875	June —, '76	No.
John J. Roche	Platteville..	Diploma ..	1873	—, '74	No.
Cornelia E. Rogers	Whitewater.	Certificate.	1878	June 5, '79	Yes.
Helen A. Sizer Rogers ..	Oshkosh ...	Certificate.	1876	July 5, '77	No.
Viola A. Rundal	Platteville..	Certificate.	1878	June 26, '79	Yes.
Celia A. Salisbury	Whitewater.	Diploma ..	1877	Jan. 27, '79	Yes.
Carrie F. Saunders	River Falls.	Certificate.	1878	July 30, '80	Yes.
G. J. Schellinger	Platteville..	Diploma ..	1872	—, '73	Yes.
S. H. Schellinger	Platteville..	Diploma ..	1873	June —, '75	Yes.
M. L. Schwin	Whitewater.	Certificate.	1876	July 9, '77	Yes.
Wm. F. Scott	Oshkosh ...	Certificate.	1876	June 27, '77	No.
Bessie Seeley	Platteville..	Diploma ..	1875	June 23, '80	No.
Bessie L. Seward	Whitewater.	Certificate.	1876	July 23, '77	No.
Alice L. Sherman	Whitewater.	Diploma ..	1878	Sept. 7, '80	Yes.
Adelbert I. Sherman ..	Whitewater.	Diploma ..	1879	Aug. 20, '80	Yes.
Fannie H. Shields	Oshkosh ...	Certificate.	1879	Aug. 20, '80	Yes.
Clyde R. Showalter	Platteville..	Certificate.	1877	July 15, '80	Yes.

Teachers' State Certificates in Force.

TABLE NO. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881 — Continued.

*Certificates and Diplomas of Graduates of the State Normal Schools, Counter-
signed by the State Superintendent — Continued.*

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
Clyde R. Showalter.....	Platteville..	Diploma ..	1879	July 15, '80	Yes.
Wm. J. Showers	Whitewater.	Diploma ..	1873	July —, '75	Yes.
Bertha Shuster.....	Whitewater.	Certificate.	1878	June 27, '79	No.
Jennie Sims	Platteville..	Certificate.	1875	July 23, '77	Yes.
Sade L. Sims.....	Platteville..	Certificate.	1876	Nov. 12, '80	Yes.
J. J. Skahen	Oshkosh ...	Certificate.	1878	Nov. 11, '79	Yes.
Bessie Skavlem	Whitewater.	Certificate.	1877	Mar. 18, '79	Yes.
Aimee Bell <i>Smith</i>	Oshkosh ...	Certificate.	1876	Aug. 27, '77	No.
Albert F. Smith	Platteville..	Diploma ..	1877	Sept. 29, '80	Yes.
J. Frank Smith.....	Platteville..	Certificate.	1876	July —, '77	Yes.
Hattie E. Smith	Oshkosh ...	Diploma ..	1879	Aug. 23, '80	Yes.
Harvey R. Smith	Oshkosh ...	Certificate.	1877	July 1, '78	Yes.
Julia Smith.....	Whitewater.	Certificate.	1876	Sept. 10, '78	Yes.
Mary How <i>Smith</i>	Platteville..	Diploma ..	1875	Feb. 8, '77	No.
M. Ethel Smith.....	Whitewater.	Certificate.	1879	June 28, '80	Yes.
E. H. Sprague.....	Platteville..	Diploma ..	1869	—, '70	No.
Sarah C. Bass <i>Spence</i> ...	Platteville..	Diploma ..	1874	—, '75	No.
Fannie M. Spencer.....	Oshkosh ...	Certificate.	1880	Aug. 23, '81	Yes.
Alma B. Stanford	Whitewater.	Certificate.	1880	Sept. 6, '81	Yes.
Eva Stearns.....	Oshkosh ...	Certificate.	1879	July 6, '80	Yes.
Lucy Stevens	Platteville..	Certificate.	1878	June 26, '79	Yes.
Paine T. Stevens	Platteville..	Diploma ..	1873	July 16, '74	No.
Carrie Edwards <i>Stevens</i> ..	Platteville..	Diploma ..	1873	—, '74	No.
Annie Stewart	Oshkosh ...	Certificate.	1876	—, '77	Yes.
Libbie Stewart.....	Oshkosh ...	Certificate.	1876	—, '77	Yes.
Helen U. Sturtevant. ...	Whitewater.	Diploma ..	1872	Aug. 30, '80	Yes.
Clara Sumner	Oshkosh ...	Certificate.	1880	July 13, '81	Yes.
Rachel L. Sutton.....	Oshkosh ...	Diploma ..	1875	—, '76	Yes.
Myrtie Sylvester	Platteville..	Certificate.	1877	June 27, '79	Yes.
Carrie W. Taylor.....	Whitewater.	Certificate.	1878	June 28, '79	Yes.
Mary E. Taylor.....	Whitewater.	Diploma ..	1877	Oct. 23, '79	Yes.
Ida Teed.....	Whitewater.	Certificate.	1877	Mar. 18, '79	Yes.
Helen Idella Teed.....	Whitewater.	Diploma ..	1879	July 12, '80	Yes.
Nellie A. Teed	Whitewater.	Certificate.	1878	July 29, '79	Yes.
Homer A. Terrill.....	Platteville..	Diploma ..	1879	June 23, '80	Yes.
Sophia C. Thomas.....	Platteville..	Diploma ..	1875	July 25, '76	Yes.
Louisa Townsend.....	Whitewater.	Certificate.	1877	July 3, '78	Yes.
Julia Murly <i>Thuet</i>	Platteville..	Certificate.	1877	Sept. 6, '78	No.
Hattie H. Tripp.....	Whitewater.	Certificate.	1880	Apr. 25, '81	Yes.
Rosepha C. Trippe.....	Whitewater.	Diploma ..	1880	June 23, '81	Yes.
Rosa Trautman	River Falls.	Certificate.	1878	Oct. 10, '81	Yes.
Chas. Turner.....	Whitewater.	Diploma ..	1880	Aug. 10, '81	Yes.
Carrie S. Udell.....	Whitewater.	Certificate.	1880	Aug. 23, '81	Yes.

*Teachers' State Certificates in Force.*TABLE No. XXXII.—TEACHERS' STATE CERTIFICATES IN FORCE,
DECEMBER 31, 1881—Continued.*Certificates and Diplomas of Graduates of the State Normal Schools, Countersigned
by the State Superintendent—Continued.*

NAMES.	Graduated at what normal school.	Received a certificate or diploma.	Year issued.	Date of coun- tersigning.	Teaching or not teaching.
John Ulrich	Platteville..	Certificate ..	1876	Dec. 18, '78	Yes.
John Ulrich	River Falls.	Diploma ..	1879	Sept. 27, '81	Yes.
N. E. Utt	Platteville..	Diploma ..	1873	July —, '74	No.
W. H. Utt	Platteville..	Diploma ..	1871	June —, '72	No.
Nellie A. Vannetta	River Falls.	Certificate.	1878	June 10, '80	Yes.
Enoch Vernon	Platteville..	Certificate.	1879	July 2, '80	No.
Maggie G. Vincent	Whitewater.	Diploma ..	1875	July 25, '76	Yes.
Ole Nelson Wagley	Whitewater.	Diploma ..	1878	June 16, '79	Yes.
Ruth E. Wales	Whitewater.	Diploma ..	1875	Aug. 10, '75	Yes.
W. A. Walker	Platteville..	Diploma ..	1870	June —, '71	No.
Lessie I. Wallace	Platteville..	Diploma ..	1875	Sept. 3, '80	Yes.
Mary C. Warne	Whitewater.	Certificate.	1879	Sept. 2, '81	Yes.
E. Treganowan Warner..	Platteville..	Diploma ..	1871	June —, '72	No.
Emma Watkins	Platteville..	Diploma ..	1873	Dec. —, '75	Yes.
Emily F. Webster	Oshkosh ...	Diploma ..	1875	—, '76	Yes.
Lillie B. Webster	Whitewater.	Certificate.	1880	July 11, '81	Yes.
Allen B. West	Whitewater.	Certificate.	1878	July 8, '80	Yes.
Abby F. White	Platteville..	Diploma ..	1870	July —, '71	Yes.
M. Lyons Wilcox ..	Whitewater.	Diploma ..	1874	—, '75	No.
L. P. Wilcox	Oshkosh ...	Certificate.	1878	Oct. 1, '79	Yes.
Albert Williams	Platteville..	Diploma ..	1870	July —, '71	Yes.
Lina A. Williams	Oshkosh ...	Certificate.	1878	Aug. 23, '79	Yes.
Edwin A. Williams	Platteville..	Diploma ..	1873	Jan. —, '76	Yes.
Leo Williams	Whitewater.	Certificate.	1878	Sept. 15, '79	No.
Mary Wilmer	Whitewater.	Certificate.	1876	Dec. 18, '77	Yes.
Jessie L. Wiswell	Whitewater.	Certificate.	1879	Nov. 16, '80	Yes.
Lizzie Wooster	Whitewater.	Diploma ..	1877	June 11, '80	Yes.
Lyman C. Wooster	Whitewater.	Diploma ..	1873	Nov. 14, '81	Yes.
Annie J. Wyman	Whitewater.	Certificate.	1876	June 18, '77	Yes.
Mary Yeo	Oshkosh ...	Certificate.	1878	Nov. 1, '81	Yes.
Frederic G. Young	Oshkosh ...	Diploma ..	1879	July 13, '81	Yes.

City Superintendents.

TABLE No. XXXIII.
CITY SUPERINTENDENTS.
In Commission, December, 1881.

CITY.	NAME.	No of schools in city.	Salary.	Expenses for printing, postage, and stationery.
Appleton	A. H. Conkey.....	7	\$325 00	\$25 00
Beaver Dam.....	James J. Dick	8	200 00	150 00
Beloit	B. M. Malone.....	3	100 00	77 20
Berlin	D. P. Blackstone....	3	100 00	5 00
Columbus	John S. Maxwell....	5	75 00	30 00
Fond du Lac ...	C. A. Hutchins.....	19	500 00	25 00
Fort Howard. .	George Richardson..	10	200 00	50 00
Grand Rapids ...	Geo. L. Williams... .	1	100 00	15 00
Green Bay.....	J. H. Leonard.....	5	350 00	51 25
Hudson	N. H. Clapp	2	25 00	23 55
Janesville	R. W. Burton	6	1,500 00	100 00
Kenosha	James Cavanagh....	4	200 00	20 00
La Crosse	Albert Hardy	17	800 00	200 00
Madison	S. Shaw	9	2,000 00	156 00
Menasha	Chas. R. Smith.....	5	50 00	10 00
Milwaukee	James MacAlister...	39	3,000 00	181 53
Mineral Point ...	Thomas Priestley...	2	100 00	10 00
Neenah	J. R. Barnett.....	5	200 00	25 00
Oconto	Hamilton Allan....	5	150 00	50 00
Oshkosh	George H. Read.....	10	600 00	320 00
Portage	A. Schloemilch	5	300 00	5 00
Prairie du Chien..	A. C. Wallin	5	100 00	20 00
Racine	H. G. Winslow.....	9	1,000 00	210 45
Ripon.....	John Moore.....	4	100 00	7 50
Sheboygan	L. D. Harvey.....	6	150 00	25 00
Stevens Point....	Frank L. Green . . .	4	100 00	20 00
Watertown	C. F. Viebahn.....	6	1,600 00	75 00
Wausau	C. D. Abbey	4	100 00	25 00
Totals.....	.....	208	\$14,025 00	\$1,884 78

County Superintendents.

TABLE No. XXXIV.
COUNTY SUPERINTENDENTS.
In Commission, December, 1881.

COUNTY.	NAME.	POST-OFFICE.	No. of schools in county.	Salary.	Printing, post- age, and sta- tionery.
Adams	Jessie M. Higbee..	Plainville.....	66	\$500	\$52 00
Ashland.....	E. C. Smith	Ashland	6	100	5 00
Barron	H. J. White.....	Sumner	67	500	100 00
Bayfield	O. Flanders	Bayfield	1	100	25 00
Brown	Minnie H. Kelleher	Depere	86	800	100 00
Buffalo.....	J. C. Rathbun . . .	Alma	81	800	140 00
Burnett	E. M. Wilson.....	Grantsburg....	14	100	15 00
Calumet.....	W. B. Minaghan...	Chilton.....	68	800	100 00
Chippewa....	C. D. Tillinghast..	Bloomer	97	1,100	20 00
Clark	John S. Dore.....	Neillsville.....	81	800	200 00
Columbia....	Henry Neill.....	Portage.....	146	1,000	200 00
Crawford....	J. H. McDonald...	Eastman.....	98	800	188 40
Dane, 1st dist.	C. E. Buell.....	Sun Prairie..	126	800	150 00
Dane, 2d dist.	E. E. Fitz Gibbons.	Mount Hope...	120	800	200 00
Dodge	John T. Flavin...	Watertown....	190	1,200	200 00
Door	Chris Daniels . . .	Sturgeon Bay..	54	500	75 00
Douglas.....	Irwin W. Gates....	Superior.....	2	50	.....
Dunn	Florence Tickner..	Menomonie....	103	800	128 18
Eau Claire....	Agnes Hosford....	Eau Claire.....	73	800	95 75
Fond du Lac..	Ed. McLoughlin...	Eldorado Mills.	166	1,100	148 50
Grant	Charles L. Harper..	Hazel Green..	217	1,000	176 00
Green	D. H. Morgan	Albany.....	136	800	175 00
Green Lake...	A. W. Millard	Manchester....	70	800	160 00
Iowa	Wm. A. Jones . . .	Mineral Point..	126	800	150 00
Jackson	T. P. Marsh	Sechlerville...	76	800	175 00
Jefferson....	C. L. Hubbs	Fort Atkinson..	132	800	144 16
Juneau	W. G. Spence.....	Mauston.....	95	800	200 00
Kenosha	Daniel A. Mahoney	Salem	61	600	150 00
Kewaunee....	W. H. Timlin	Kewaunee....	54	800	200 00
La Crosse....	C. S. Stockwell....	Onalaska	66	800	150 00
La Fayette....	C. G. Thomas.....	Darlington....	128	900	200 00
Langlade....	Geo. D. Ratcliffe...	Antigo	18	300	54 00
Lincoln	James Westcott....	Merrill	8	300	50 00
Manitowoc...	John Nagle	Manitowoc....	110	1,200	120 00
Marathon....	Thomas Greene....	Wausau	98	800	116 00
Marinette....	Henry C. Sibree....	Peshtigo	27	500	.....
Marquette....	R. G. O'Connor....	Montello.....	59	500	150 00
Milw., 1st dist	James A. Ruan....	Oak Creek....	35	800	63 00
Milw., 2d dist	Geo. H. Fowler....	Wauwatosa....	32	800	63 58
Monroe	A. F. Brandt	Sparta.....	127	800	100 00
Oconto.....	Hamilton Allan....	Oconto	85	500	100 00
Outagamie...	John A. Leith.....	Appleton.....	110	800	200 00
Ozaukee	W. F. Scott.....	Cedarburg.....	61	800	75 00
Pepin	W. E. Barker.....	Pepin	38	500	64 33
Pierce	Amos Rosenberger.	Malden Rock..	107	800	200 00